

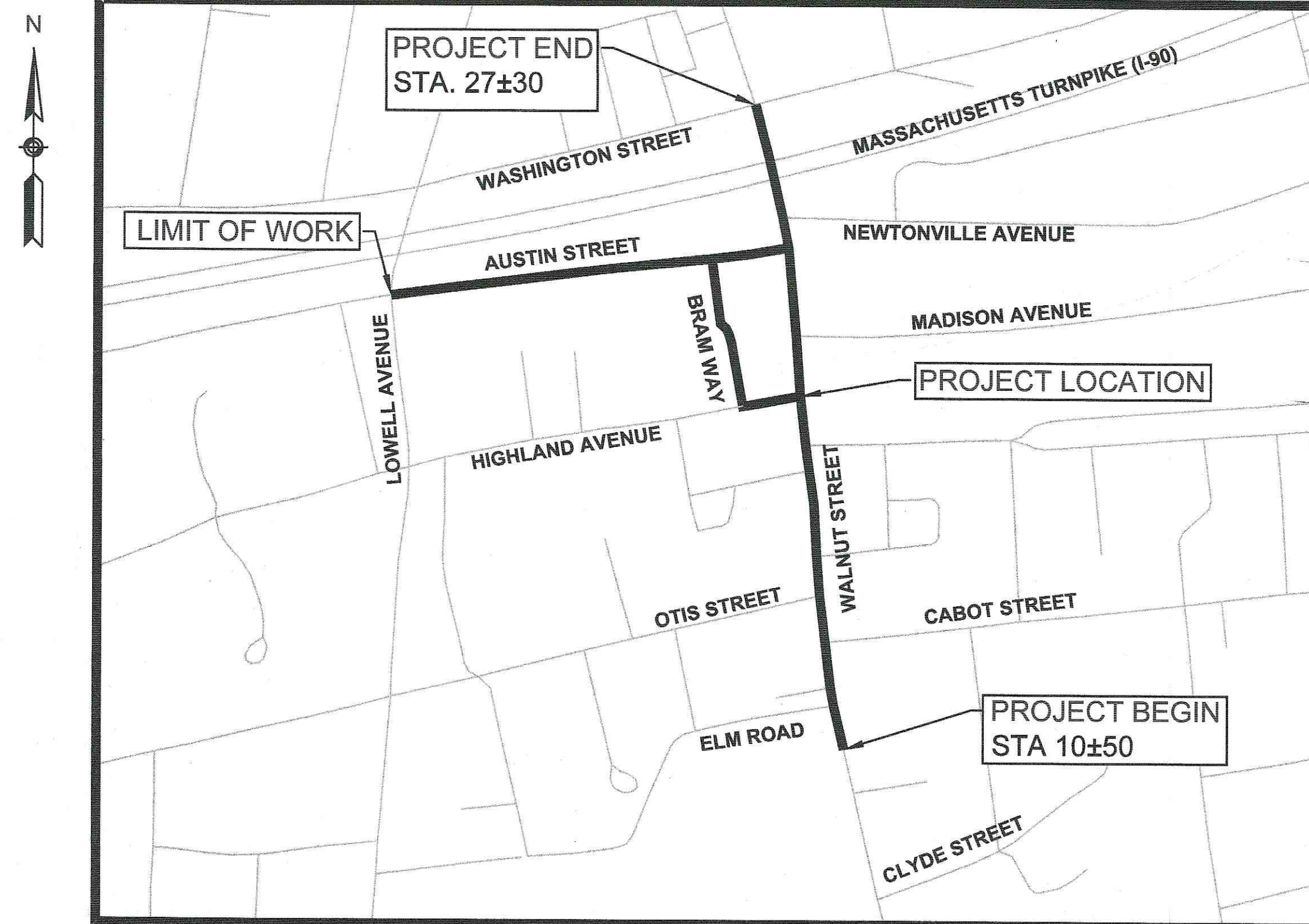
# CITY OF NEWTON

## PLAN AND PROFILE OF REHABILITATION OF WALNUT STREET PROJECT # 20-11

AUGUST 2019

### INDEX

SHEET NO.	DESCRIPTION
01	TITLE SHEET & INDEX
02	LEGEND & ABBREVIATIONS
03	KEY PLAN
04	GENERAL NOTES
05-08	TYPICAL SECTION
09-11	CONSTRUCTION DETAILS
12-13	WHEELCHAIR RAMP / DRIVEWAY DETAILS
14-17	SURVEY CONTROL PLANS
18-21	CONSTRUCTION PLANS
22-24	PROFILE - WALNUT STREET
25-26A	PROFILES - SIDE STREETS
27-30	CURB TIE PLANS
31-34	GRADING PLANS
35-38	UTILITY PLANS
39-43	TRAFFIC SIGNS AND PAVEMENT MARKINGS
44-47	TRAFFIC SIGN SUMMARY SHEET
48-49	TRAFFIC SIGNAL PLANS
50-52	TRAFFIC SIGNAL DETAILS
53-56	TRAFFIC MANAGEMENT PLANS
57	GENERAL NOTES AND SYMBOLS
58	PLANT SCHEDULE
59-62	LANDSCAPE PLANS
63-65	LANDSCAPE ENLARGEMENT PLANS
66-69	LANDSCAPE DETAILS
70-73	SITE PHOTOMETRIC PLANS
74-77	STREET LIGHTING PLANS
78-80	STREET LIGHTING DETAILS



LOCUS

SCALE: 1" = 300' APPROX.



PREPARED FOR:

DEPARTMENT OF PUBLIC WORKS  
CITY OF NEWTON  
110 CRAFTS STREET  
NEWTON, MA 02458

PREPARED BY:

ENVIRONMENTAL PARTNERS GROUP, INC.  
1900 CROWN COLONY DRIVE, SUITE 402  
QUINCY, MA 02169  
P: 617-657-0200  
F: 617-657-0201



8/4/2019

**Environmental Partners**  
A partnership for engineering solutions. **GROUP**


























































			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
MARK	DATE	DESCRIPTION	Approved by	JDF



















































THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING




























## LEGEND & ABBREVIATIONS

02

AS NOTED

EXISTING	PROPOSED	DESCRIPTION
 JB	 JB	JERSEY BARRIER
 CB	 CB	CATCH BASIN
		CATCH BASIN CURB INLET
 FP	 FP	FLAG POLE
		GAS PUMP
 MB	 MB	MAIL BOX
		POST SQUARE
 EHH	 EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
 GG	 GG	GAS GATE
BHL #		BORING HOLE
		HYDRANT
		LIGHT POLE
 CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
 MHB	 MHB	MASSACHUSETTS HIGHWAY BOUND MONUMENT
 SB		STONE BOUND
 TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
 UFB	 UFB	UTILITY POLE W/ FIREBOX
 UPDL	 UPDL	UTILITY POLE WITH DOUBLE LIGHT
 ULT	 ULT	UTILITY POLE W / 1 LIGHT
 UPL	 UPL	UTILITY POLE

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

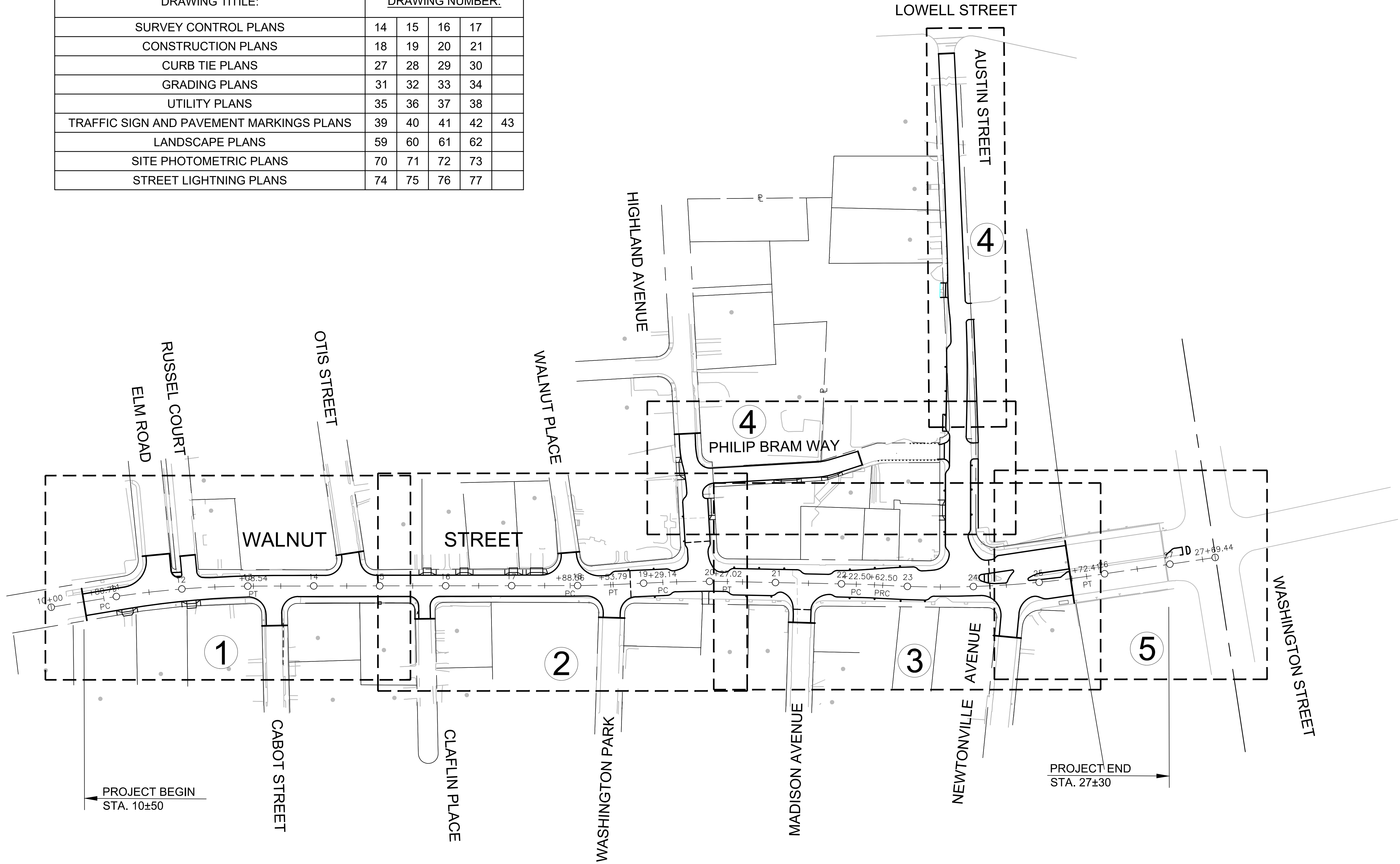
ABBREVIATIONS	
GENERAL	
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
BB	
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CRW	CONCRETE RETAINING WALL
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
L	LENGTH OF CURVE
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUNDARY
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PKF	PICKET FENCE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PRF	POST AND RAIL FENCE
PROJ	PROJECT
PROP	PROPOSED
PT	POINT OF TANGENCY

ABBREVIATIONS (cont.)	
GENERAL	
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLDR	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SMRW	STONE MASONRY RETAINING WALL
SRW	STONE RETAINING WALL
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
VCC	VERTICAL CONCRETE CURB
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIF	WROUGHT IRON FENCE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
TRAFFIC SIGNAL	
CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW






SHEET REFERENCE	1	2	3	4	5
DRAWING TITILE:	DRAWING NUMBER:				
SURVEY CONTROL PLANS	14	15	16	17	
CONSTRUCTION PLANS	18	19	20	21	
CURB TIE PLANS	27	28	29	30	
GRADING PLANS	31	32	33	34	
UTILITY PLANS	35	36	37	38	
TRAFFIC SIGN AND PAVEMENT MARKINGS PLANS	39	40	41	42	43
LANDSCAPE PLANS	59	60	61	62	
SITE PHOTOMETRIC PLANS	70	71	72	73	
STREET LIGHTNING PLANS	74	75	76	77	





Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\CADD\Sheet\04\_General Notes.dwg Plot Date: Aug 20 2019 12:19pm

SURVEY NOTES:			GENERAL NOTES CONTINUED:			STORMWATER FACILITY OPERATION & MAINTENANCE:		
<div>1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ON-THE-GROUND SURVEY PERFORMED BY ALLEN &amp; MAJOR ASSOCIATES, INC. BETWEEN NOVEMBER 2016 AND DECEMBER 2016. ADDITIONAL SURVEY ALONG HIGHLAND AVENUE FROM PHILIP BRAM WAY TO WALNUT PACE, PHILIP BRAM WAY FROM HIGHLAND AVENUE TO AUSTIN STREET, AND AUSTIN STREET FROM PHILIP BRAM WAY TO LOWELL AVENUE WAS PERFORMED BY LANDTECH, INC. BETWEEN FEBRUARY 2018 AND MARCH 2018 AND INCORPORATED INTO THE BASE PLAN.</div> <div>2. BEARINGS AND DISTANCES AND THE COORDINATES THEY ARE BASED ON SHOWN ON THIS PLAN ARE IN U.S. SURVEY FEET IN THE MA. STATE PLANE COORDINATE SYSTEM REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), CORS ADJUSTMENT (NA2011/GEOID 12A) AS DETERMINED BY GPS OBSERVATIONS PERFORMED IN NOVEMBER OF 2016 UTILIZING MAINE TECHNICAL SOURCE RTK GPS NETWORK.</div> <div>3. BOUNDARY AND RIGHT-OF-WAY LINES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON A COMPILATION OF RECORD INFORMATION, OBSERVABLE EVIDENCE AND PHYSICAL OCCUPATION. A BOUNDARY SURVEY OF INDIVIDUAL PARCELS WAS NOT PERFORMED.</div> <div>4. THE VERTICAL DATUM FOR THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), CORS ADJUSTMENT (NA2011/GEOID 12A) AS DETERMINED BY REDUNDANT GPS OBSERVATIONS PERFORMED IN NOVEMBER OF 2016 UTILIZING THE MAINE TECHNICAL SOURCE RTK GPS NETWORK.</div> <div>5. THE ACCURACY OF MEASURED PIPE INVERTS AND PIPE SIZES IS SUBJECT TO FIELD CONDITIONS, THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS AND OTHER CONDITIONS.</div> <div>6. PRE AND POST CERTIFICATION OF STONE BOUNDS (AND BENCHMARKS) THAT DELINEATE THE CITY RIGHT OF WAY SHALL BE REQUIRED AT THE DIRECTION OF THE CITY ENGINEER AND CONSIDERED INCIDENTAL TO THIS PROJECT. IF REQUIRED THE CERTIFICATION SHALL INCLUDE A SURVEY PLAN, STAMPED BY A PLS REGISTERED IN MASSACHUSETTS AND BE SUBMITTED IN MYLAR AND ELECTRONIC FORMAT TO THE CITY ENGINEER THAT CERTIFIES THE STONE BOUNDS (AND OR BENCHMARKS) HAVE EITHER BEEN PRESERVED IN THE CORRECT LOCATION OF THEY HAVE BEEN SET AT THE LIMIT OF THE RIGHT OF WAY. THE PLAN SHALL INDICATE BEARINGS AND DISTANCE FOR STRAIGHT SEGMENTS AND RADII FOR CURVED INTERSECTIONS AND ANY ADDITIONAL INFORMATION AS DIRECTED BY THE CITY ENGINEER.</div>			<div>19. SITE LAYOUT SURVEY REQUIRED FOR CONSTRUCTION MUST BE PROVIDED BY THE CONTRACTOR AND PERFORMED BY A MASSACHUSETTS' REGISTERED PROFESSIONAL LAND SURVEYOR. AS INCIDENTAL TO THIS PROJECT THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE SURVEYOR FOR ALL SITE SURVEY WORK.</div> <div>20. MAINTAIN ALL GRADE STAKES SET BY THE SURVEYOR. GRADE STAKES ARE TO REMAIN UNTIL A FINAL INSPECTION OF THE ITEM HAS BEEN COMPLETED BY THE ENGINEER. RE-STAKING OF PREVIOUSLY SURVEYED SITE FEATURES IS THE RESPONSIBILITY (INCLUDING COST) OF THE CONTRACTOR.</div> <div>21. PROVIDE ALL CONSTRUCTION SERVICE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING NOISE, VIBRATION, DUST, SEDIMENTATION CONTAINMENT, AND TRENCH WORK.</div> <div>22. COLLECT SOLID WASTES AND STORE IN A SECURED DUMPSTER. THE DUMPSTER MUST MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS.</div> <div>23. REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. PROMPTLY REMOVE ALL DEMOLITION DEBRIS FROM THE SITE TO AN APPROVED DUMP SITE.</div> <div>24. ALL TRUCKS LEAVING THE SITE MUST BE COVERED.</div> <div>25. DO NOT WASH ANY CONCRETE TRUCKS ONSITE. REMOVE BY HAND ANY CEMENT OR CONCRETE DEBRIS LEFT IN THE DISTURBED AREA.</div> <div>26. BURIAL OF ANY STUMPS, SOLID DEBRIS, AND/OR STONES/BOULDERS ONSITE IS PROHIBITED.</div> <div>27. IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED.</div> <div>28. AT THE END OF CONSTRUCTION, REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIALS FROM THE SITE PERFORM A THOROUGH INSPECTION OF THE WORK PERIMETER. COLLECT AND REMOVE ALL MATERIALS AND BLOWN OR WATER CARRIED DEBRIS FROM THE SITE.</div> <div>29. THE CONTRACTOR SHALL PROVIDE FOR THE SAFE AND ORDERLY PASSAGE OF VEHICULAR AND PEDESTRIAN TRAFFIC IN AREAS UNDER CONSTRUCTION.</div> <div>30. SHOP DRAWINGS OF ALL CASTINGS, PRECAST CONCRETE STRUCTURES, PIPE AND MANUFACTURED COMPONENTS SHALL BE SUBMITTED FOR APPROVAL BEFORE ORDERING.</div> <div>31. ALL PROPOSED PAVEMENT MARKINGS SHALL MEET EXISTING MARKINGS AT THE LIMITS OF WORK.</div> <div>32. DETECTABLE WARNING PANELS SHALL BE INSTALLED ON ALL WHEELCHAIR RAMPS AND SHALL COMPLY WITH CONSTRUCTION STANDARD E 107.6.5. PAYMENT FOR DETECTABLE WARNING PANELS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE WHEELCHAIR RAMPS OR SIDEWALKS IN WHICH THEY ARE BEING INSTALLED. THE COLOR OF DETECTABLE WARNING PANELS SHALL BE AT THE DIRECTION OF THE CITY.</div> <div>33. SEE SIGNS AND PAVEMENT MARKING PLANS FOR PROPOSED SIGNS AND DISPOSITION OF THE EXISTING SIGNS WITHIN THE PROJECT LIMITS OR AS DIRECTED BY THE CITY.</div> <div>34. DO NOT SCALE DRAWINGS UNLESS OTHERWISE NOTED. WRITTEN DIMENSIONS SHALL PREVAIL. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.</div> <div>35. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).THE CONTRACTOR SHALL RESTORE ALL PUBLIC AND PRIVATE PROPERTY TO ITS PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE CITY.</div> <div>36. THE CONTRACTOR SHALL RESTORE ALL PUBLIC AND PRIVATE PROPERTY TO ITS PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE CITY.</div> <div>37. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO THE RESPECTIVE UTILITY COMPANY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.</div> <div>38. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. INJURY TO ANY SUCH STRUCTURE CAUSED BY, OR RESULTING FROM, THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE RESPECTIVE UTILITY AND THE CITY.</div> <div>39. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES, BUSHES, PLANTS, FLOWERS, STONEWALLS, FENCES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED. CONTRACTOR SHALL REPLACE AT NO COST TO OWNER, ALL DAMAGED ITEMS.</div> <div>40. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY HIS CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, AND TO THE SATISFACTION OF THE CITY AND ENGINEER.</div> <div>41. ANY TRAFFIC SIGNAL EQUIPMENT (LIGHTS, CONDUITS, LOOP DETECTORS) DISTURBED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AS DIRECTED BY THE CITY AT THE CONTRACTOR'S EXPENSE.</div> <div>42. THE CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.</div> <div>43. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A TELEPHONE NUMBER WHERE THE CONTRACTOR CAN BE REACHED 24 HOURS A DAY, 7 DAYS A WEEK.</div> <div>44. THE LOCATION AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO THE CITY. THE CONTRACTOR SHALL LIMIT ACTIVITIES TO THESE AREAS.</div> <div>45. THE CONTRACTOR SHALL BE REQUIRED TO TEMPORARILY PAVE ALL DISTURBED TRAVEL WAYS, SIDEWALKS &amp; DRIVEWAYS NOT UNDER CONSTRUCTION OR IF LEFT DURING NON WORKING HOURS AND AS REQUIRED BY THE CITY. SEE CONSTRUCTION DETAIL ON SHEET 9.</div> <div>46. THE CONTRACTOR SHALL CLEAN ALL CATCH BASINS WITHIN THE PROJECT LIMITS AFTER THE COMPLETION OF FINAL PAVING AS DIRECTED BY THE CITY. THE COST FOR THIS WORK SHALL BE CONSIDER INCIDENTAL TO THIS PROJECT. NO ADDITIONAL COMPENSATION SHALL BE REQUESTED TO THE CITY.</div>			<div>1. INSPECT AND RESTORE/CLEAN ALL FACILITIES (INLETS, MANHOLES, INFILTRATION BASINS, ETC.) OF SEDIMENT AND DEBRIS PRIOR TO THE OWNER'S ACCEPTANCE.</div> <div>2. REMOVE AND DISPOSE ALL SEDIMENT AND DEBRIS AT A PRE-APPROVED LOCATION AS APPROVED BY THE CITY.</div> <div>3. REFER TO THE NPDES STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL INFORMATION PERTAINING TO STORMWATER FACILITY OPERATION AND MAINTENANCE REQUIREMENTS. MAINTAIN A WORKING COPY OF THE SWPPP ON SITE AT ALL TIMES.</div> <div>4. INSPECT AFTER EVERY MAJOR RAINFALL EVENT FOR THE ENTIRE DURATION OF THE CONSTRUCTION PROJECT AND THE FIRST 3 MONTHS AFTER CONSTRUCTION TO ENSURE PROPER STABILIZATION AND CONSTRUCTION.</div> <div>5. MAINTENANCE REQUIRED FOR DRAINAGE STRUCTURES (INLETS, MANHOLES &amp; CATCHBASINS): ALL DRAINAGE STRUCTURES WILL BE INSPECTED BY THE CONTRACTOR TO MONITOR FOR PROPER OPERATION, COLLECTION OF LITTER OR TRASH, AND STRUCTURAL DETERIORATION. THE BASINS WILL BE CLEANED OF SEDIMENT (INCLUDING SUMPS) AS NECESSARY, AND REPAIRED WHEN REQUIRED.</div>		
GENERAL CONSTRUCTION NOTES:			EROSION & SEDIMENT CONTROL (ESC) NOTES:					
<div>1. CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE FOLLOWING: THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED APRIL 1, 2019 , THE 2017 CONSTRUCTION STANDARD DETAILS AND AS AMENDED, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH LATEST REVISIONS AND MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1988 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.</div> <div>2. IT IS THE INTENT OF THE DESIGN TO PROVIDE A MINIMUM CONSTRUCTED SIDEWALK WIDTH FOR A PATH OF TRAVEL PAST ALL OBSTRUCTIONS OF 3'-0" CLEARANCE FOR HANDICAP ACCESSIBILITY (IN ACCORDANCE WITH THE LATEST A.D.A. AND MASSDOT REQUIREMENTS), THE CONTRACTOR SHALL VERIFY THAT ALL POTENTIAL OBSTRUCTIONS HAVE BEEN ADDRESSED IN THE PLANS INCLUDING BUT NOT LIMITED TO FOUNDATIONS, SIGNS, MAILBOXES, UTILITY POLES, AND HYDRANTS SO THEY ARE LOCATED TO PROVIDE THIS MINIMUM PATH OF TRAVEL CLEARANCE AND A MINIMUM 18" TYPICAL CLEARANCE TO THE FACE OF CURB OR 12" MIN. CLEARANCE WHERE 18" IS NOT FEASIBLE OR PRACTICAL. NO UTILITY POLES OR OBSTRUCTIONS ARE PERMITTED WITHIN WHEELCHAIR RAMPS.</div> <div>3. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED HEREIN USING NEW MATERIALS OR WHERE APPLICABLE, REUSING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&amp;R). ALL OTHER MATERIALS SHALL BE "REMOVED AND DISCARDED" (R&amp;D) OR DISPOSED OF OFF SITE WITH THE EXCEPTION OF MATERIALS LABELED AS "REMOVED AND STACKED" (R&amp;S) WHICH SHALL BE TRANSPORTED AND AND STACKED AT A LOCATION DESIGNATED BY THE CITY AND OR ENGINEER.</div> <div>4. MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, PAY ALL FEES INCLUDING POLICE DETAILS AND POST ALL BONDS, IF NECESSARY, ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE OWNER AND THE ENGINEER.</div> <div>5. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES, PRIVATE PROPERTY OR WITHIN 100 FEET OF WETLANDS, UNLESS DIRECTED TO DO SO BY THE CONTRACT DOCUMENTS.</div> <div>6. ALL EXISTING CONDITIONS SHOWN ARE APPROXIMATE AND ARE BASED ON THE BEST INFORMATION AVAILABLE. PRIOR TO THE START CONSTRUCTION VERIFY THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLING ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.</div> <div>7. THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES, AND WHEREVER POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY IN THE CITY, AND "DIGSAFE" (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK IN PREVIOUSLY UNALTERED AREAS TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR MUST RESOLVE CONFLICTS BETWEEN THE PROPOSED UTILITIES AND FIELD-LOCATED UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED, INCOMPLETELY OR INACCURATELY SHOWN. THE CONTRACTOR MUST MAINTAIN ACCURATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED AND EXISTING UTILITIES FOUND DURING CONSTRUCTION FOR THE PREPARATION OF THE AS-BUILT PLAN.</div> <div>8. THE CONTRACTOR SHALL FILE WORK ORDER FOR ALL UNDERGROUND ELECTRIC SERVICE CONNECTIONS AT THE BEGINNING OF THE CONSTRUCTION DUE TO THE LONG LEAD PROCESS TIME. WORK ORDER SHALL BE SUBMITTED BY THE CONTRACTOR'S LICENSED ELECTRIAN TO EVERSOURCE ELECTIRC.</div> <div>9. THE CONTRACTOR SHALL COORDINATE ALL ARRANGEMENTS FOR THE ALTERATION AND OR ADJUSTMENT OF ELECTRIC, TELEPHONE, GAS AND ANY OTHER PRIVATE UTILITY.</div> <div>10. SHOULD AN EXISTING UTILITY BE FOUND TO BE IN CONFLICT WITH THE PROPOSED WORK, THE LOCATION, SIZE AND TYPE SHALL BE ACCURATELY DETERMINED WITHOUT DELAY, BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE CITY AND OR ENGINEER FOR RESOLUTION OF THE CONFLICT.</div> <div>11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING OR REMODELING ALL DRAINAGE, WATER, OR SEWER STRUCTURES TO THE FINISHED ELEVATION, WITHIN THE LIMITS OF THE PROJECT, UNLESS OTHERWISE NOTED.</div> <div>12. THE CONTRACTOR SHALL PERFORM TEST PITS AT LOCATIONS SHOWN ON PLAN AND AS DIRECTED BY THE CITY AND OR ENGINEER.</div> <div>13. ALL WORK TO COMPLETE THIS PROJECT AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.</div> <div>14. THE CONTRACTOR MUST MAINTAIN ALL EXISTING UTILITIES IN WORKING ORDER AND FREE FROM DAMAGE DURING THE ENTIRE DURATION OF THE PROJECT. REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ALL COST RELATED TO THE REPAIR OF UTILITIES. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES MUST BE DONE BY HAND.</div> <div>15. COORDINATE ALL TRENCHING WORK WITHIN ROADWAYS WITH THE PROPER LOCAL &amp; STATE AGENCY. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCH SAFETY INCLUDING ANY LOCAL AND/OR STATE PERMITS REQUIRED FOR THE TRENCH WORK. IF THIS WORK IS REQUIRED TO OCCUR OUTSIDE THE AGREED UPON HOURS OF OPERATION FOR THE FACILITY, THE CONTRACTOR MUST PLAN ACCORDINGLY.</div> <div>16. INSTALL ALL UTILITY TRENCH WORK PRIOR TO INSTALLING NEW PAVEMENT AS INDICATED ON THE DRAWINGS.</div> <div>17. IMPORT ONLY CLEAN MATERIAL. MATERIAL FROM AN EXISTING OR FORMER 21E SITE AS DEFINED BY THE MASSACHUSETTS CONTINGENCY PLAN 310 CMR 40.0000 WILL NOT BE ACCEPTED .</div> <div>18. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH AND MAINTAIN ALL CONTROL POINTS AND BENCHMARKS DURING CONSTRUCTION INCLUDING BENCHMARK LOCATIONS AND ELEVATIONS AT CRITICAL AREAS. COORDINATE WITH THE ENGINEER THE LOCATION OF ALL CONTROL POINTS AND BENCHMARKS.</div>			<div>1. THE CONTRACTOR SHALL DESIGNATE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS AND IMPLEMENTATION OF ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.</div> <div>2. INSTALL ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS INDICATED ON DRAWINGS IN CONSULTATION WITH THE ENGINEER BEFORE ANY CONSTRUCTION ACTIVITIES BEGIN. INSPECT, MAINTAIN, REPAIR AND REPLACE EROSION CONTROL MEASURES, AS NECESSARY, DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. THE SITE PERIMETER EROSION CONTROLS ARE THE DESIGNATED LIMIT OF WORK. INFORM ALL PERSONNEL WORKING ON THE PROJECT SITE THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.</div> <div>3. KEEP THE LIMIT OF CLEARING, GRADING AND DISTURBANCES TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. PHASE THE SITE WORK IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL. IF TREES ARE TO BE CUT, CLEAR AND GRUB ONLY THOSE AREAS WHICH ARE ACTIVELY UNDER CONSTRUCTION. PROPERLY INSTALL THE SEDIMENTATION CONTROLS PRIOR TO BEGINNING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK.</div> <div>4. MONITOR LOCAL WEATHER REPORTS DURING CONSTRUCTION AND PRIOR TO SCHEDULING EARTHMOVING OR OTHER CONSTRUCTION ACTIVITIES WHICH LEAVE LARGE DISTURBED AREAS UNSTABILIZED. IF INCLEMENT WEATHER IS PREDICTED, USE BEST PROFESSIONAL JUDGEMENT AND GOOD CONSTRUCTION PRACTICES WHEN SCHEDULING CONSTRUCTION ACTIVITIES AND ENSURE THE NECESSARY EROSION CONTROL DEVICES ARE INSTALLED AND FUNCTIONING PROPERLY TO MINIMIZE EROSION FROM ANY IMPENDING WEATHER EVENTS.</div> <div>5. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AND STABILIZED SLOPES ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF .25 INCH OR GREATER. REPAIR IDENTIFIED PROBLEMS WITHIN 24 HOURS TO ENSURE EROSION AND SEDIMENT CONTROLS ARE IN GOOD WORKING ORDER. RESET OR REPLACE MATERIALS AS REQUIRED.</div> <div>6. SURROUND THE PERIMETER OF SOIL STOCKPILES WITH SILT SOCK, SILT FENCE, STRAWBALES, OR A COMBINATION OF SILT FENCE WITH STRAWBALE, AS DETERMINED NECESSARY.</div> <div>7. DISTURBED AREAS AND SLOPES MUST NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. PROVIDE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED. REINFORCE TEMPORARY AREAS HAVING A SLOPE GREATER THAN 4:1 WITH EROSION BLANKETS OR APPROVED EQUAL UNTIL THE SITE IS PROPERLY STABILIZED. TEMPORARY SWALES MAY ALSO BE REQUIRED IF DETERMINED NECESSARY IN THE FIELD BY THE ENGINEER.</div> <div>8. INSTALL A CATCH BASIN SILT SACK OR APPROVED EQUIVALENT IN EACH EXISTING CATCH BASIN RECEIVING RUNOFF FROM THE SITE. UPON THE INSTALLATION OF EACH CATCH BASIN, INSTALL SILT SACK OR APPROVED EQUIVALENT. INSPECT SILT SACKS, AFTER EACH SIGNIFICANT STORM EVENT AND REMOVE AND EMPTY AS NEEDED FOR THE DURATION OF THE CONSTRUCTION PERIOD.</div> <div>9. SMALL SEDIMENTATION BASINS MAY BE CONSTRUCTED ON AN AS-NEEDED BASIS DURING CONSTRUCTION TO AID IN THE CAPTURE OF SITE RUNOFF AND SEDIMENT. IT WILL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR, IN CONSULTATION WITH THE ENGINEER, TO SIZE AND CREATE THESE BASINS IN APPROPRIATE LOCATIONS.</div> <div>10. CONTAIN ALL SEDIMENT ON SITE. SWEEP ALL EXITS FROM THE SITE AS NECESSARY INCLUDING ANY SEDIMENT TRACKING. SWEEP PAVED AREAS AS NEEDED TO REMOVE SEDIMENT AND POTENTIAL POLLUTANTS ACCUMULATED DURING SITE CONSTRUCTION.</div> <div>11. REMOVE ACCUMULATED SEDIMENT FROM ALL TEMPORARY PRACTICES AND DISPOSE OF IN A PRE-APPROVED LOCATION.</div> <div>12. TO ENSURE ALL EROSION AND SEDIMENTATION CONTROL DEVICES ARE PROPERLY MAINTAINED AND REPAIRED IN A TIMELY AND RESPONSIBLE MANNER, PROVIDE ON SITE,OR MAKE READILY AVAILABLE, THE NECESSARY EQUIPMENT AND SITE PERSONNEL DURING CONSTRUCTION HOURS FOR THE DURATION OF THE PROJECT. IF SITE WORK IS SUSPENDED DURING THE WINTER MONTHS THE CONTRACTOR MUST CONTINUE TO PROVIDE PERSONNEL AND EQUIPMENT ON SITE OR READILY AVAILABLE .</div> <div>13. CONTROL DUST BY WATERING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE ENGINEER.</div>					



Environmental Partners

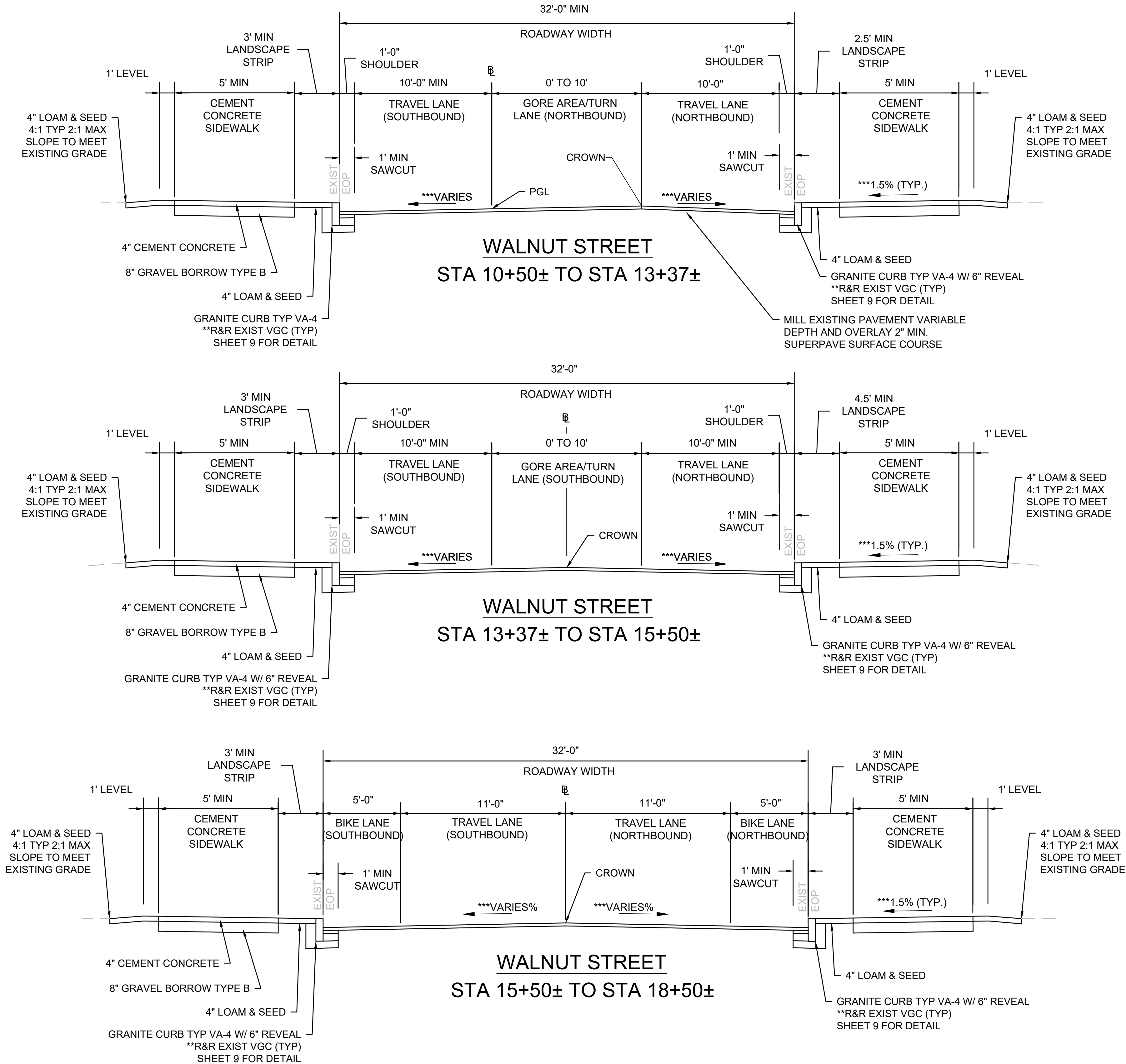
A partnership for engineering solutions.

GROUP

				Scale	NTS	THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING	REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS	GENERAL NOTES	Sheet No.
				Date	AUGUST 2019				04
				Job No.	R326-1605.00				
				Designed by	JRC				
				Drawn by	KMB				
				Checked by	BLH				
MARK	DATE	DESCRIPTION		Approved by	JDF	AS NOTED			



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet05\_Typical.dwg Plot Date: Aug 02,2019 2:53pm



PAVEMENT NOTES

PROPOSED PAVEMENT MILLING & OVERLAY

SURFACE: 2" SUPERPAVE SURFACE COURSE (SSC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.07 GAL/SY OVER

\*LEVELING: VARIABLE DEPTH AS DIRECTED OVER

MILLING: VARIABLE DEPTH PAVEMENT MILLING

PROPOSED FULL DEPTH PAVEMENT RECLAMATION

SURFACE: 2" SUPERPAVE SURFACE COURSE (SSC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.05 GAL/SY OVER

INTERMEDIATE: 2" SUPERPAVE INTERMEDIATE COURSE (SIC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.05 GAL/SY OVER

BASE: 3.5" SUPERPAVE BASE COURSE (SBC - 37.5) OVER

SUBBASE: 12" RECLAIMED SUBBASE MATERIAL

PROPOSED FULL DEPTH BOX WIDENING LESS THAN 3FT

SURFACE: 2" SUPERPAVE SURFACE COURSE (SSC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.05 GAL/SY OVER

INTERMEDIATE: 2" SUPERPAVE SURFACE COURSE (SIC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.05 GAL/SY OVER

BASE: 6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER

SUBBASE: 8" GRAVEL BORROW

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE 1.5" SUPERPAVE SURFACE COURSE (SSC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.05 GAL/SY OVER 2" SUPERPAVE SURFACE COURSE (SSC - 12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) @ 0.05 GAL/SY OVER

SUBBASE: 8" GRAVEL BORROW

PROPOSED CEMENT CONCRETE SIDEWALK

SURFACE: 4" CEMENT CONCRETE OVER

SUBBASE: 8" GRAVEL BORROW

PROPOSED CEMENT CONCRETE SIDEWALK AT DRIVEWAYS

SURFACE: 6" CEMENT CONCRETE OVER

SUBBASE: 8" GRAVEL BORROW

PROPOSED CEMENT CONCRETE WHEEL CHAIR RAMP

SURFACE: 4" CEMENT CONCRETE OVER

SUBBASE: 8" GRAVEL BORROW

PROPOSED LOAM & SEED

SURFACE: 4" LOAM BORROW

SUBBASE: VARIABLE DEPTH SUITABLE EXCAVATED MATERIAL OR ORDINARY BORROW (AS DIRECTED)

NOTES:

- ALL SAWCUTS INCLUDING THOSE IN DRIVEWAYS SHALL BE SEALED WITH A LIQUID ASPHALT SEALER PAID FOR UNDER ITEM 453. HMA JOINT SEALANT.
- DURING EXCAVATION, MATERIALS DEEMED BY THE CITY AND OR ENGINEER TO BE SUITABLE WILL BE RETAINED OR USED AS ORDINARY BORROW FOR FILL AREA. ANY UNSUITABLE SOILS AS DETERMINED BY THE CITY AND OR ENGINEER SHALL BE REMOVED AND REPLACED WITH SUITABLE SUBBASE AS IDENTIFIED ABOVE.
- BORROW SHALL ONLY BE USED WHEN NO SUITABLE EXCAVATED MATERIAL CAN BE UTILIZED AS APPROVED BY THE CITY AND/OR ENGINEER.

\*\* PROPOSED NEW GRANITE CURB TYPE VA-4 AS DIRECTED BY THE CITY AND/OR ENGINEER

\*\*\* 0.5%± CONSTRUCTION TOLERANCE



			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	JRC
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TYPICAL SECTIONS - 01

Sheet No.

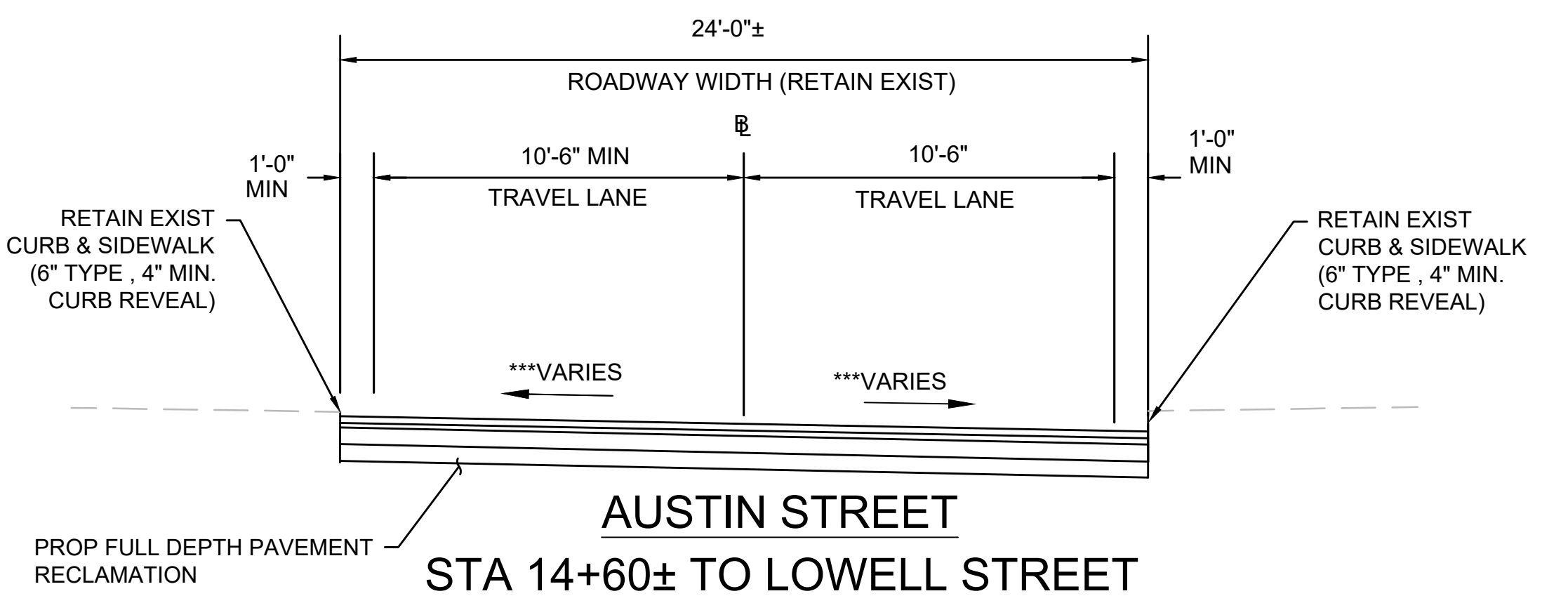
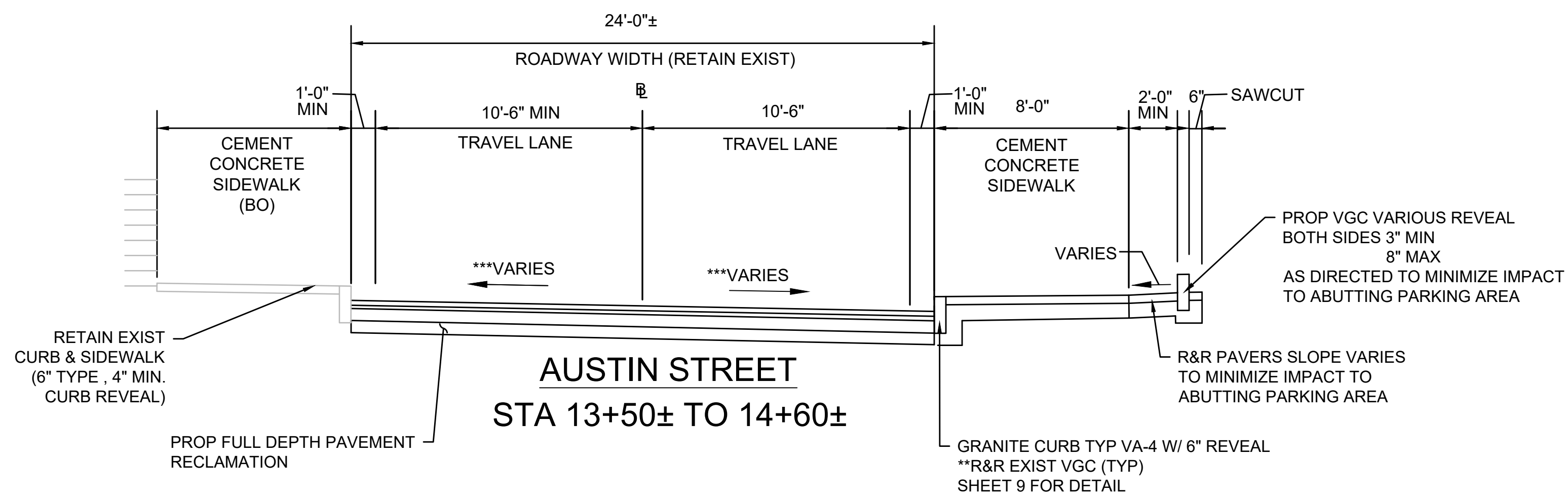
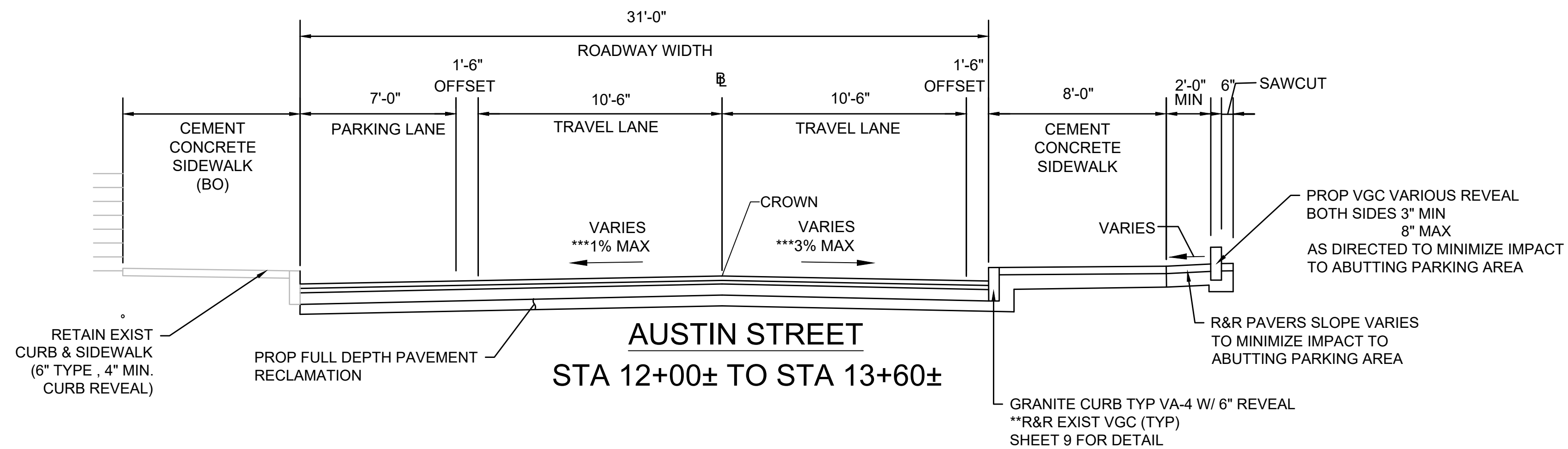
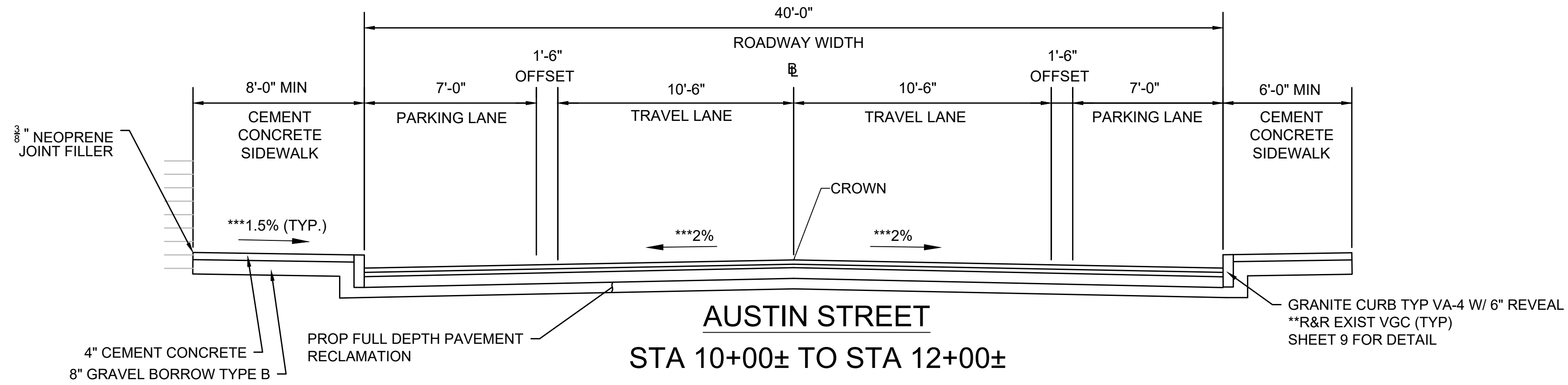
05

AS NOTED









Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\05\_Typical.dwg Plot Date: Aug 07 2019 9:02am



				Scale	NTS
				Date	AUGUST 2019
				Job No.	R326-1605.00
				Designed by	JRC
				Drawn by	KMB
				Checked by	JRC
				Approved by	JDF
MARK	DATE	DESCRIPTION			

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TYPICAL SECTIONS - 03

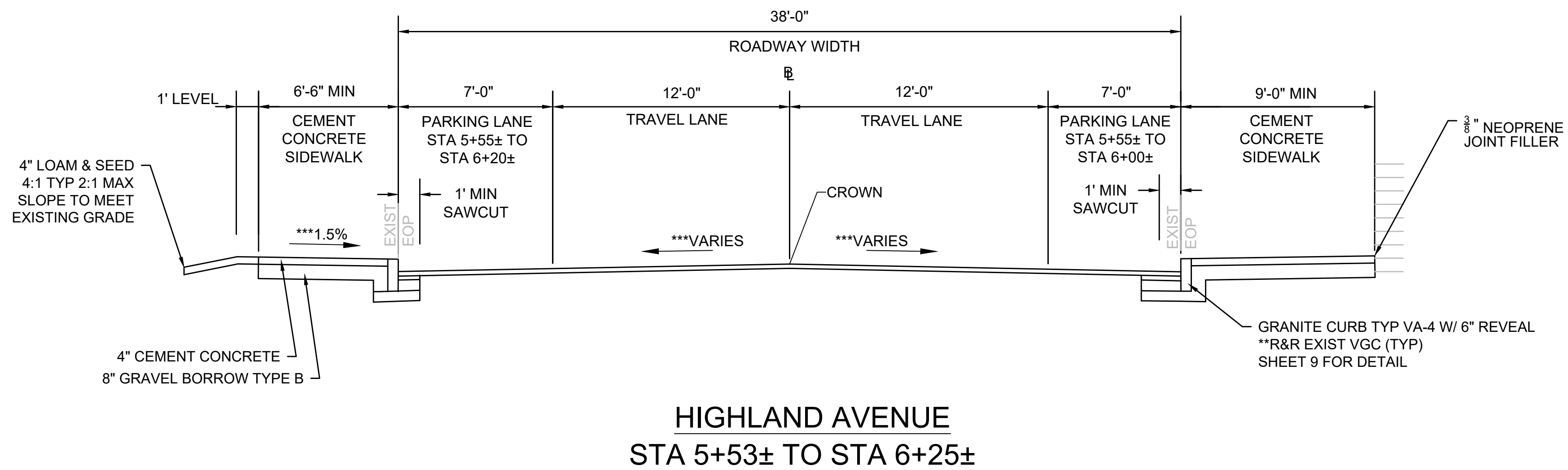
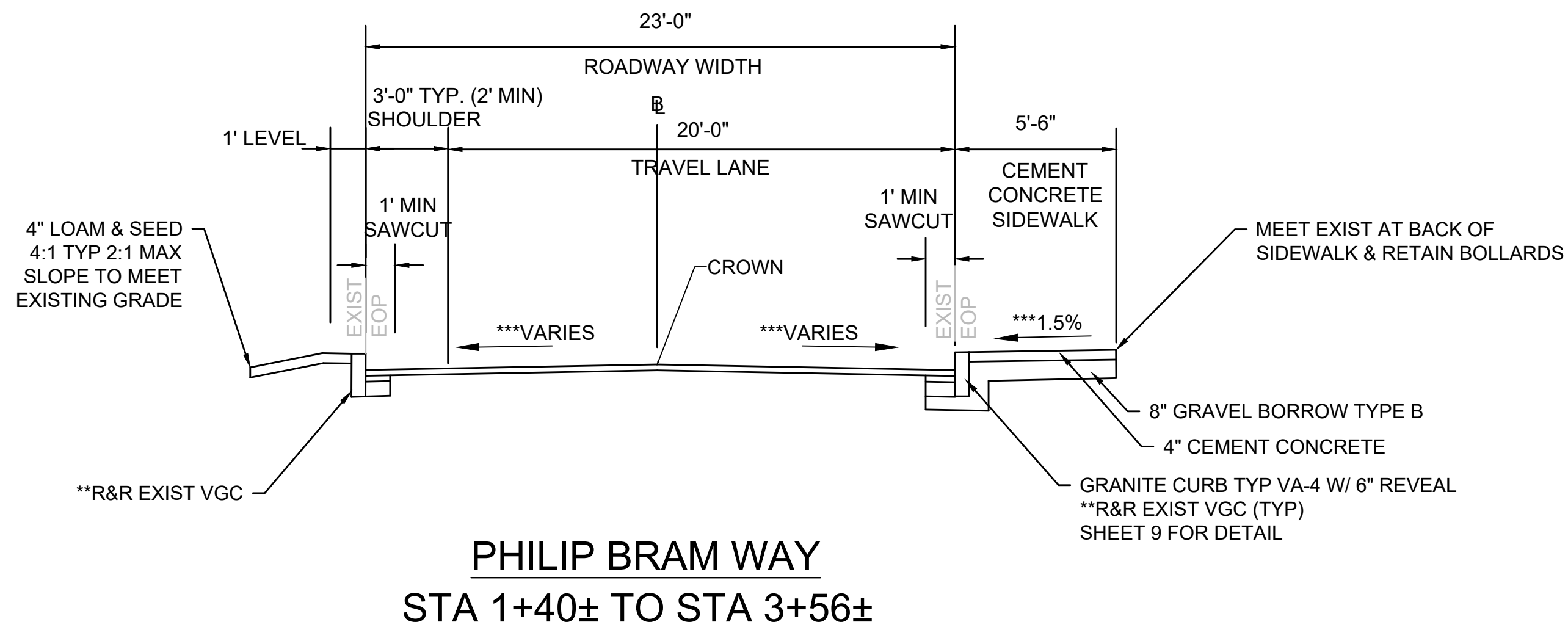
Sheet No.

07

AS NOTED



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\05\_Typical.dwg Plot Date: Aug 07 2019 7:35am

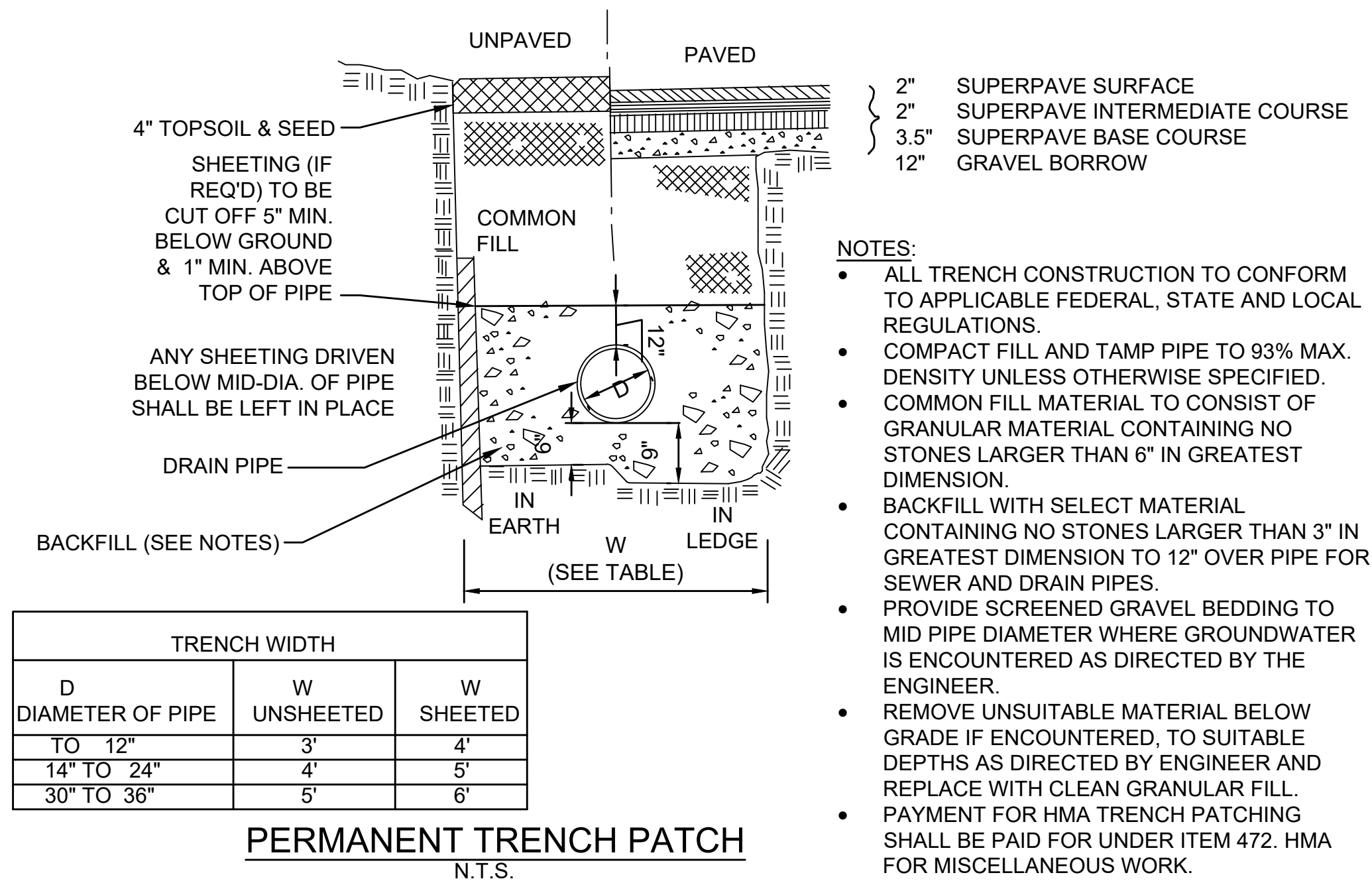
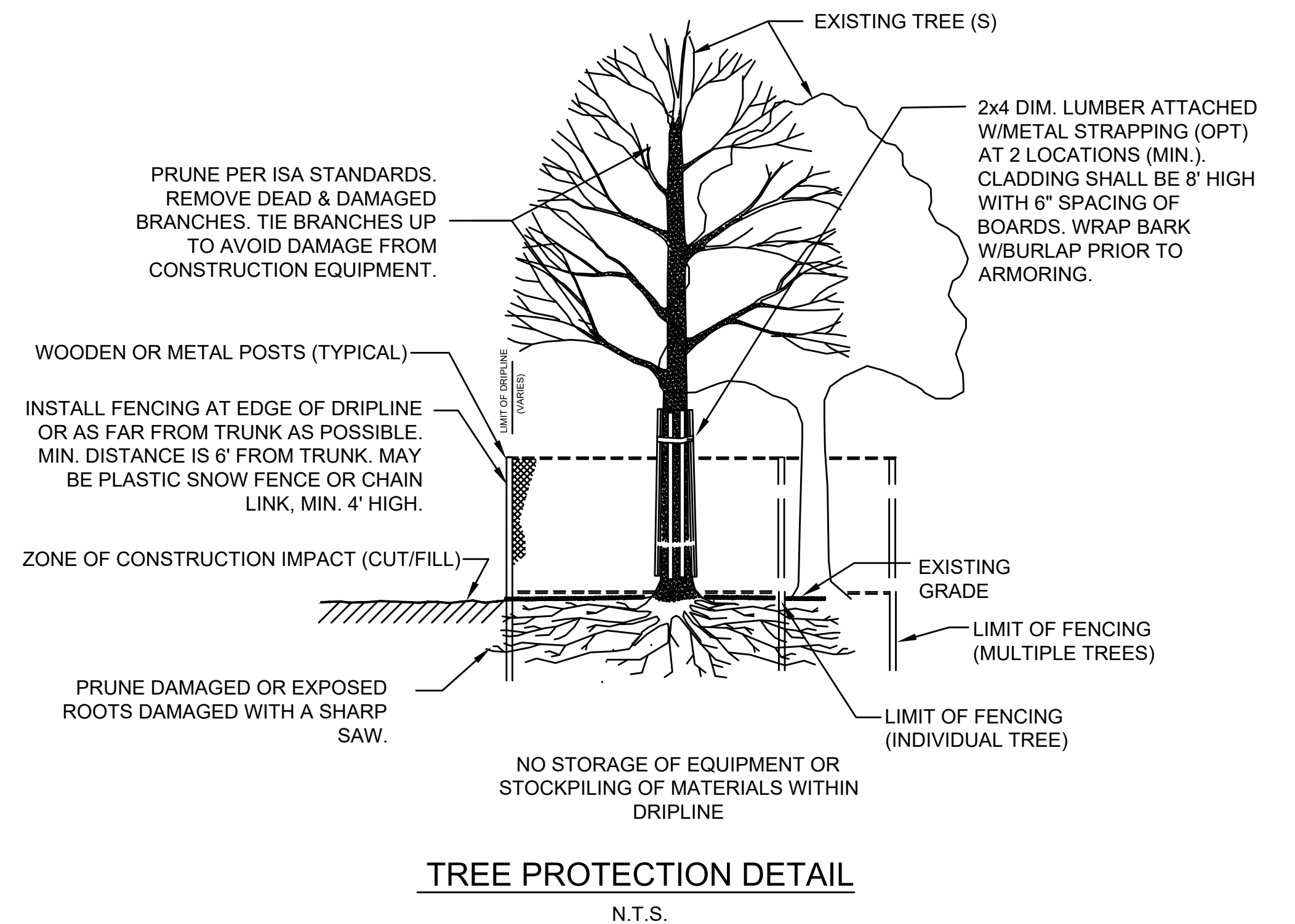
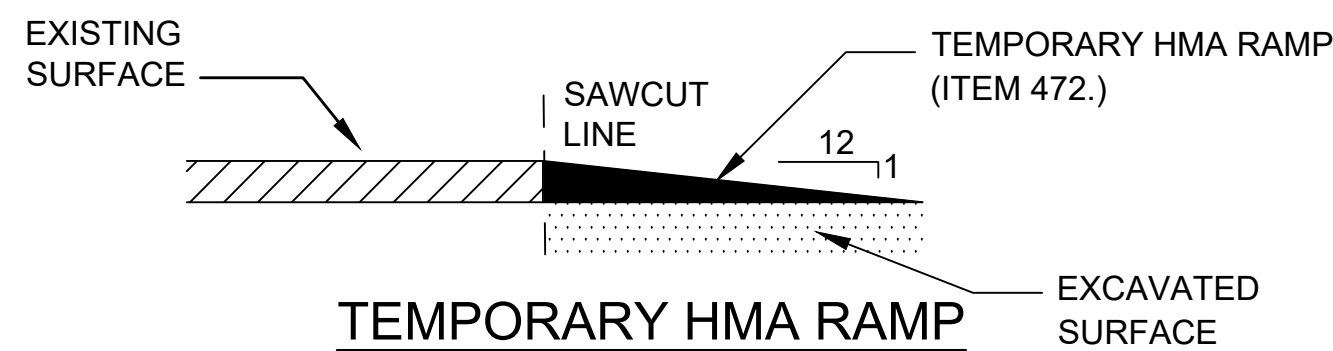
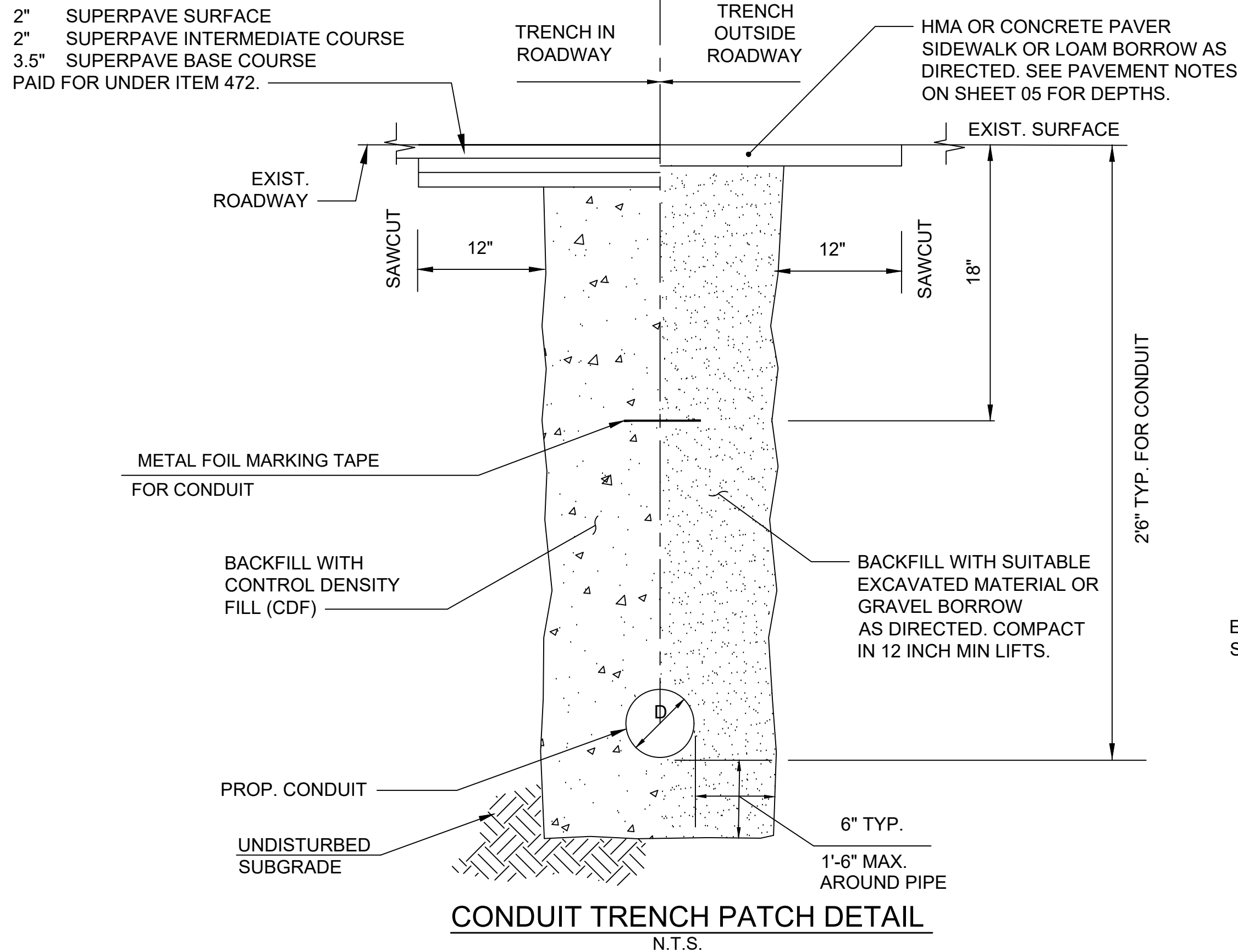


			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	JRC
			Approved by	JDF
MARK	DATE	DESCRIPTION		

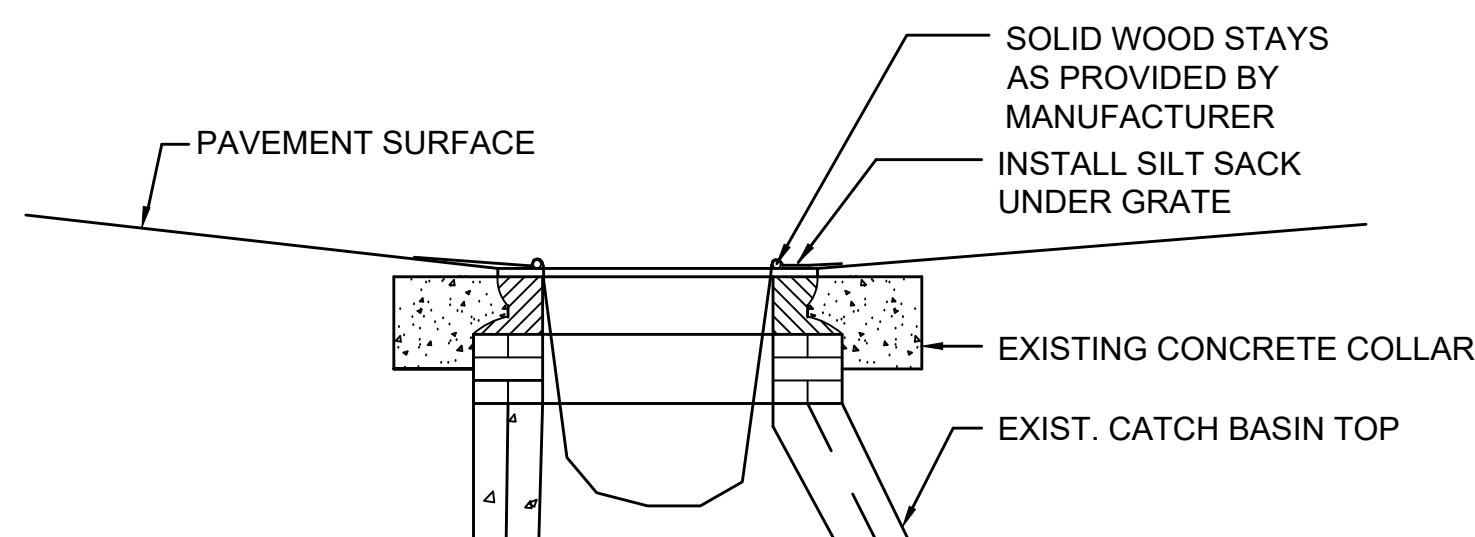
THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING



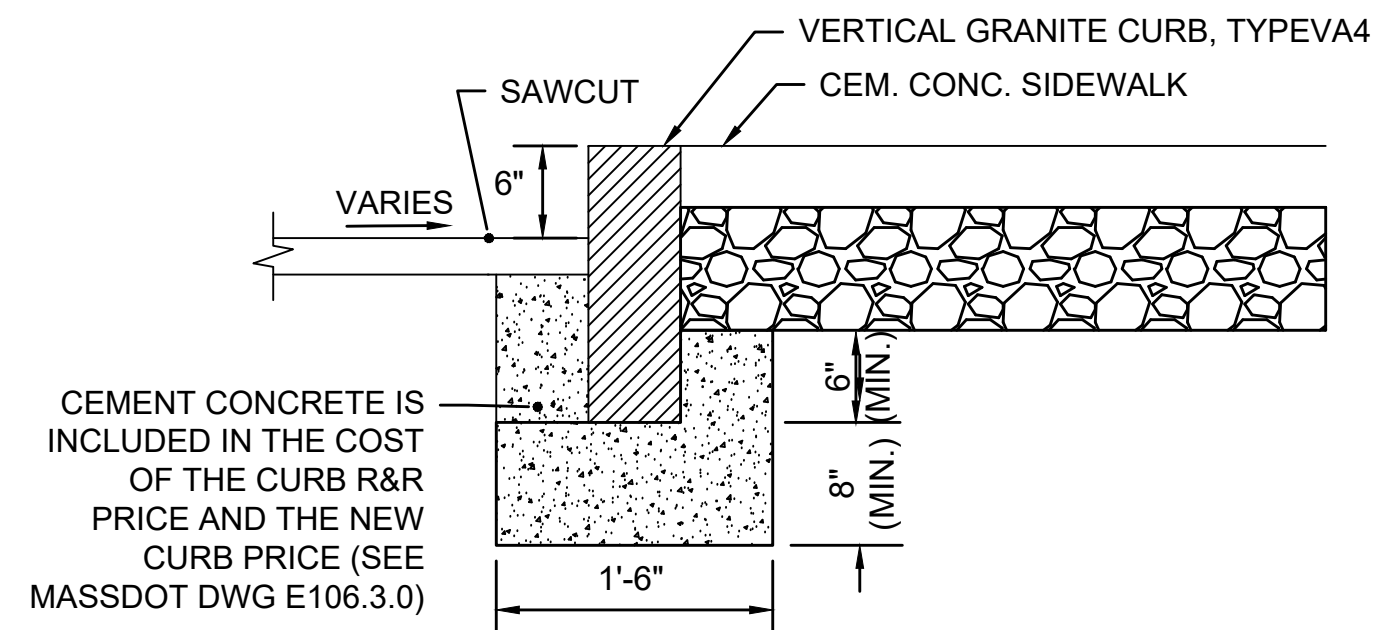
Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\06\_Construction Details.dwg Plot Date: Aug 02 2019 3:12pm



- NOTES:**
- ALL TRENCH CONSTRUCTION TO CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
  - COMPACT FILL AND TAMP PIPE TO 93% MAX. DENSITY UNLESS OTHERWISE SPECIFIED.
  - COMMON FILL MATERIAL TO CONSIST OF GRANULAR MATERIAL CONTAINING NO STONES LARGER THAN 6" IN GREATEST DIMENSION.
  - BACKFILL WITH SELECT MATERIAL CONTAINING NO STONES LARGER THAN 3" IN GREATEST DIMENSION TO 12" OVER PIPE FOR SEWER AND DRAIN PIPES.
  - PROVIDE SCREENED GRAVEL BEDDING TO MID PIPE DIAMETER WHERE GROUNDWATER IS ENCOUNTERED AS DIRECTED BY THE ENGINEER.
  - REMOVE UNSUITABLE MATERIAL BELOW GRADE IF ENCOUNTERED, TO SUITABLE DEPTHS AS DIRECTED BY ENGINEER AND REPLACE WITH CLEAN GRANULAR FILL.
  - PAYMENT FOR HMA TRENCH PATCHING SHALL BE PAID FOR UNDER ITEM 472. HMA FOR MISCELLANEOUS WORK.



- NOTES:**
- REMOVE ACCUMULATED SEDIMENTS AS REQUIRED TO MAINTAIN DRAINAGE.
  - INSPECT FABRIC EVERY WEEK DURING CONSTRUCTION.
  - 24-HOURS PRIOR TO A HEAVY RAIN EVENT SILT SACK SHALL BE CLEANED, REMOVED AND REINSTALLED AFTER THE STORM EVENT.



**NOTE:**  
CONTRACTOR SHALL FOLLOW ALL CONSTRUCTION STANDARD DETAILS AS PROVIDED BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION DATED OCTOBER 2017 OR NEWER AND THE CITY OF NEWTON CONSTRUCTION STANDARDS UNLESS OTHERWISE PROVIDED OR SPECIFIED WITHIN THE PLAN SET DOCUMENTS.



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**

			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

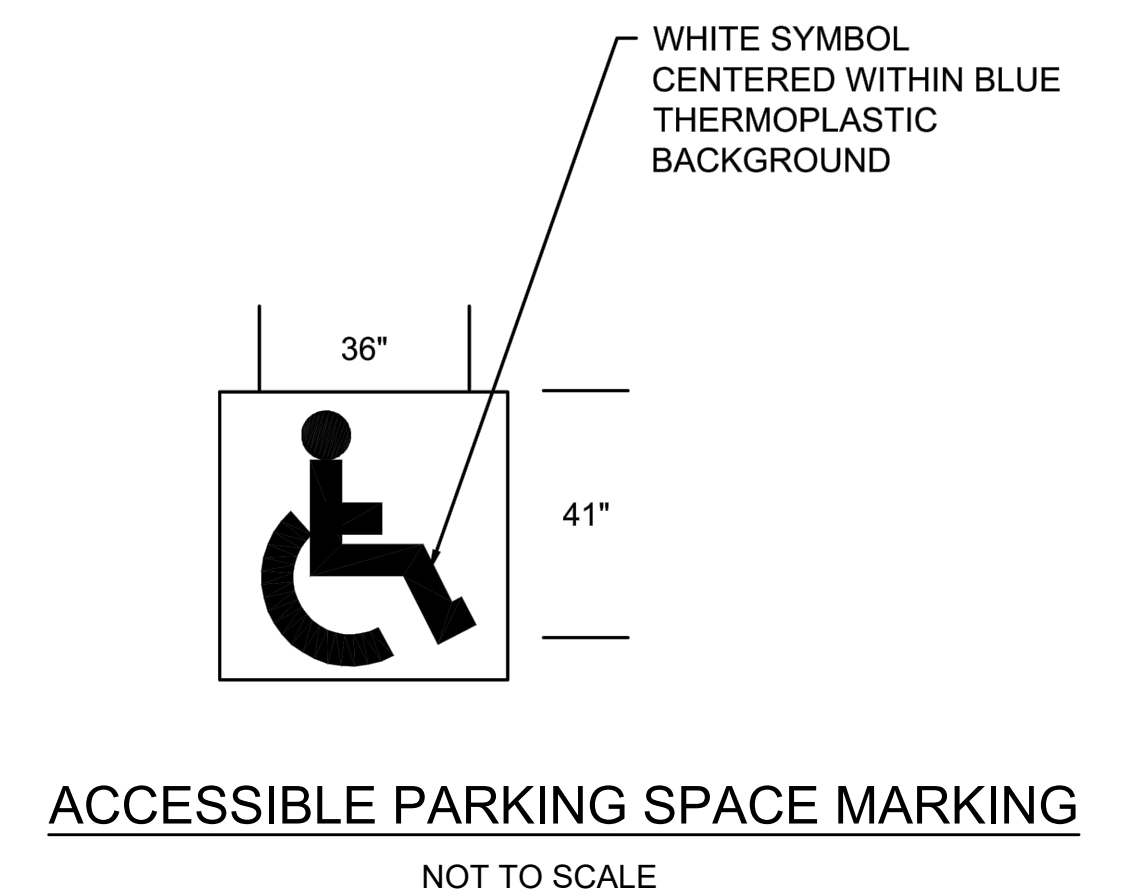
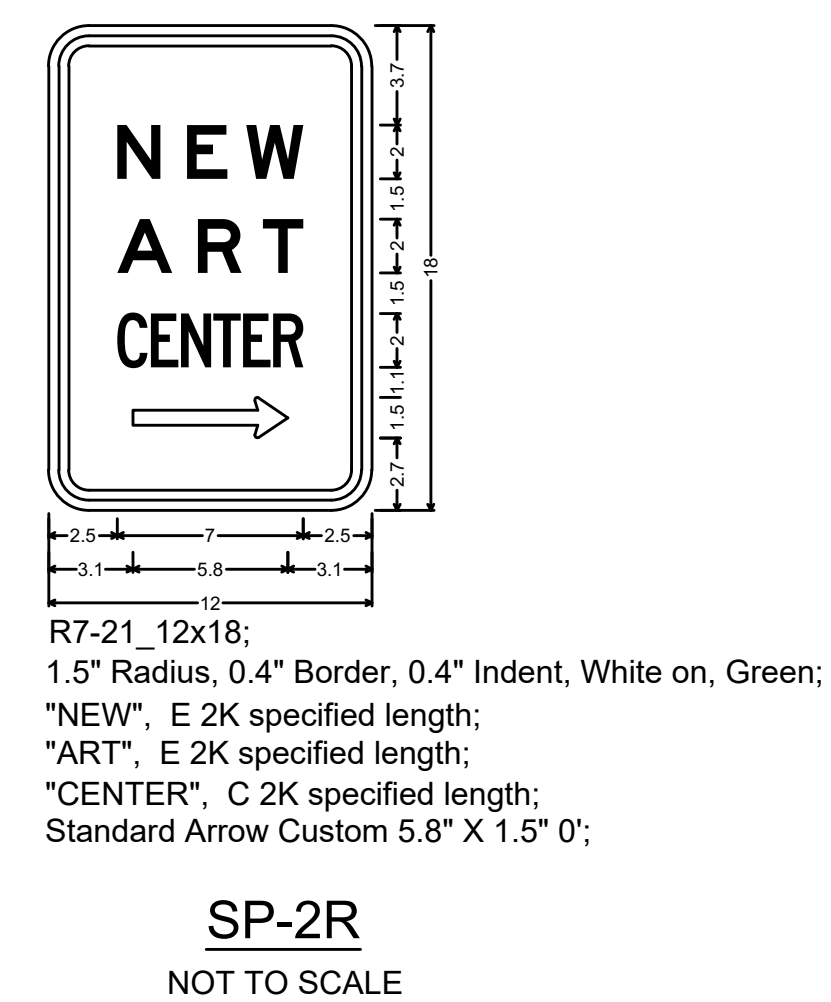
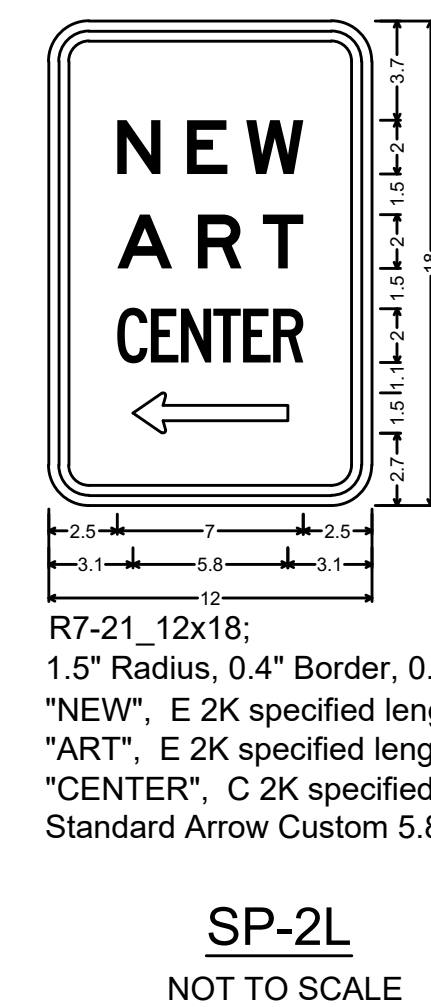
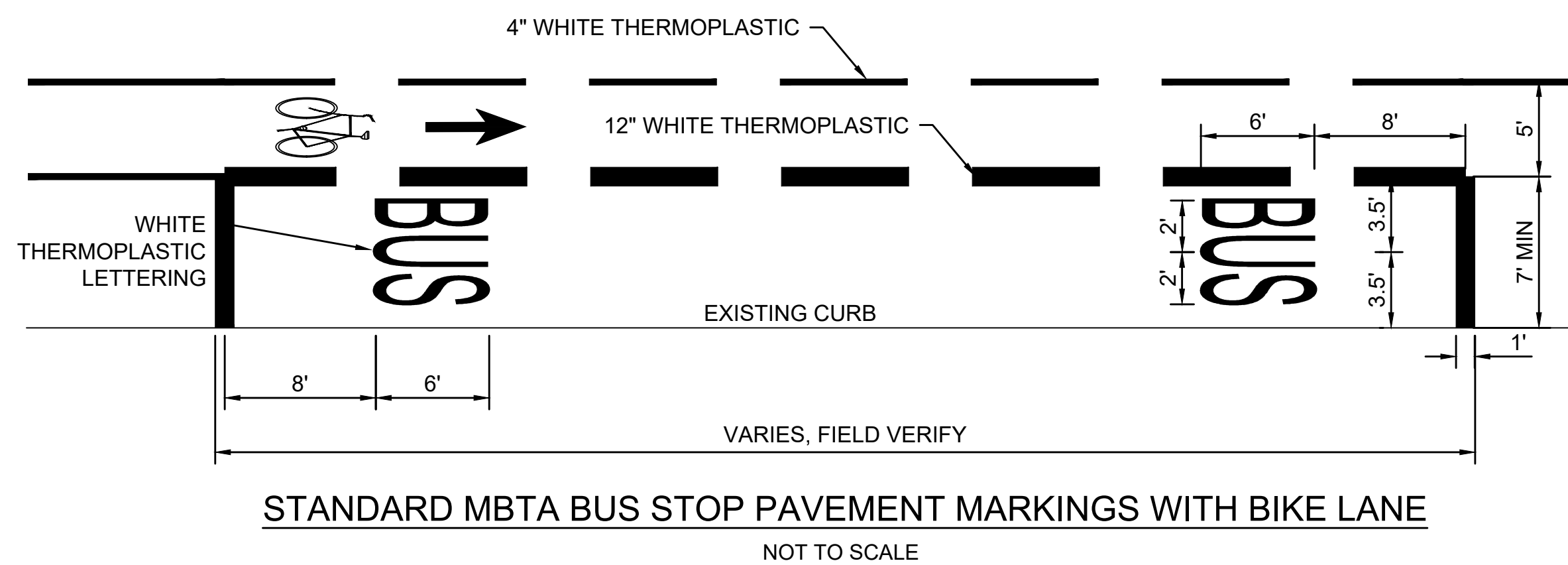
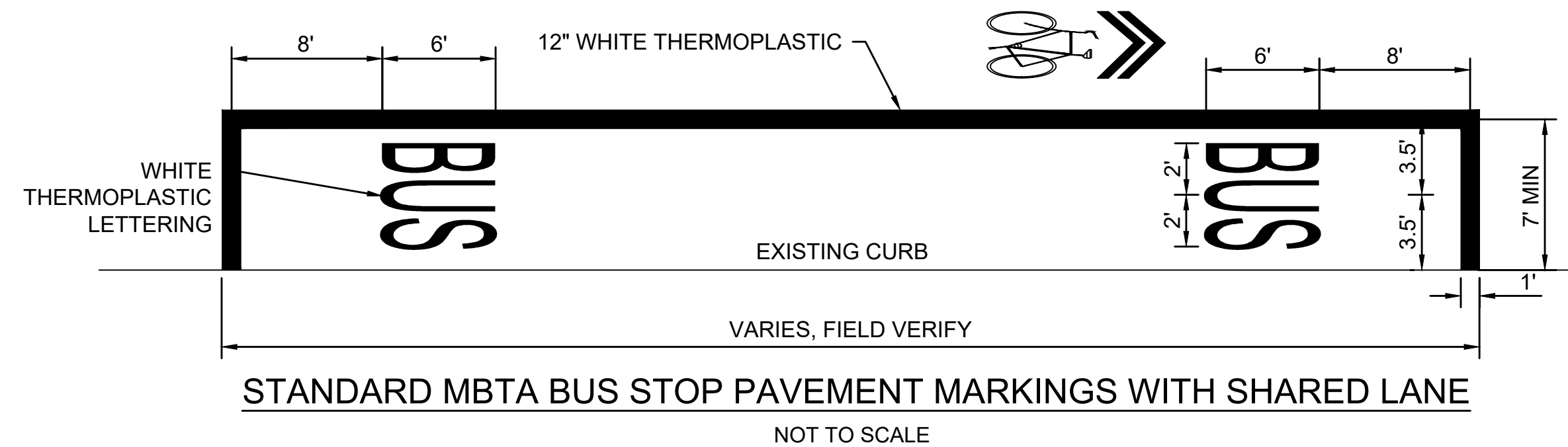
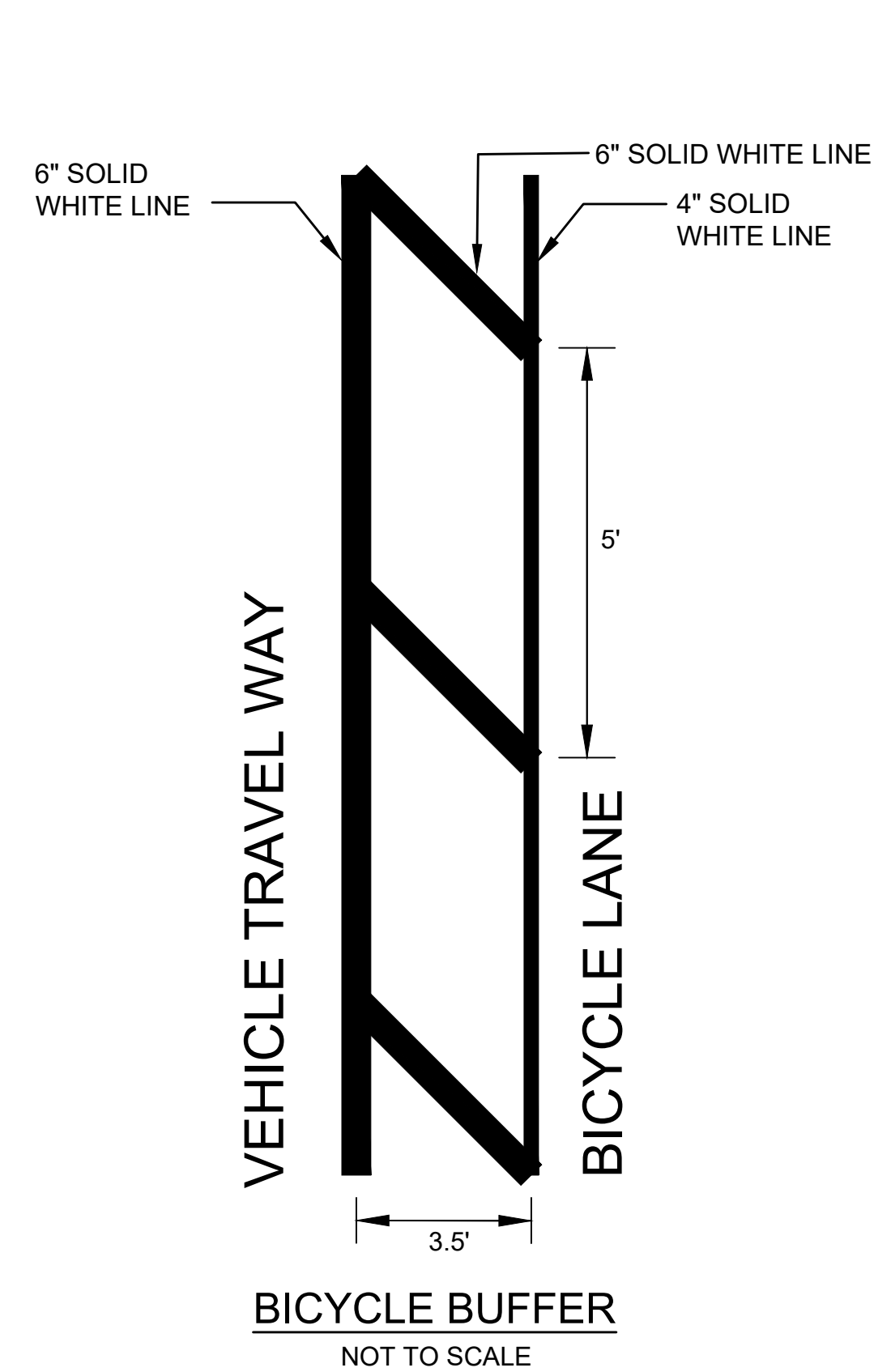
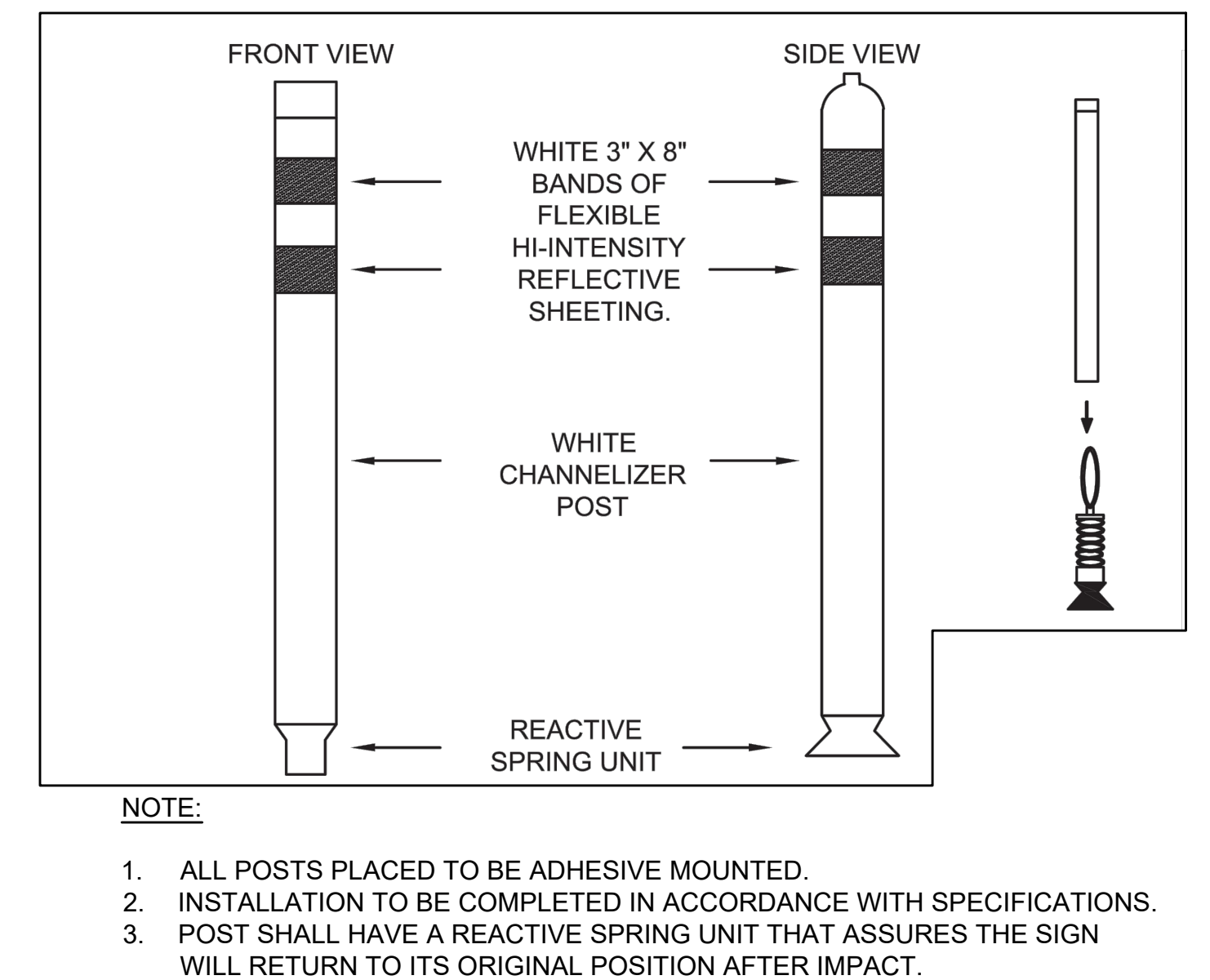
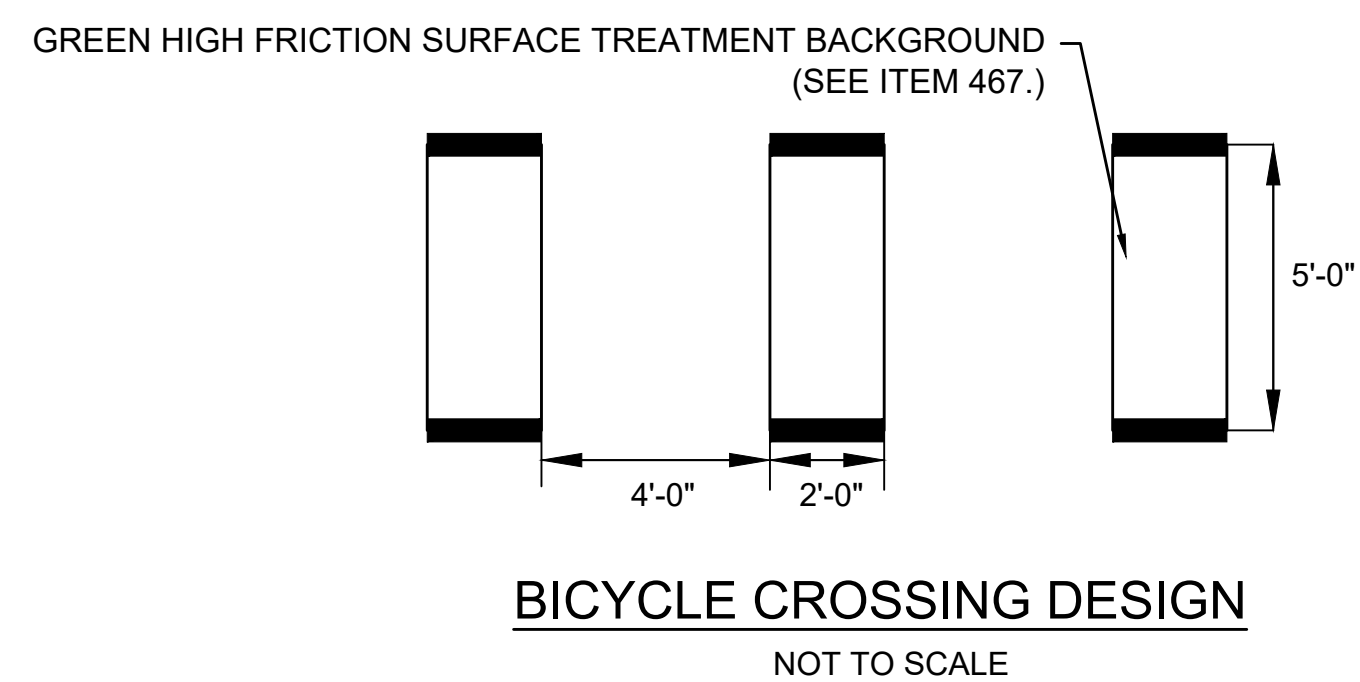
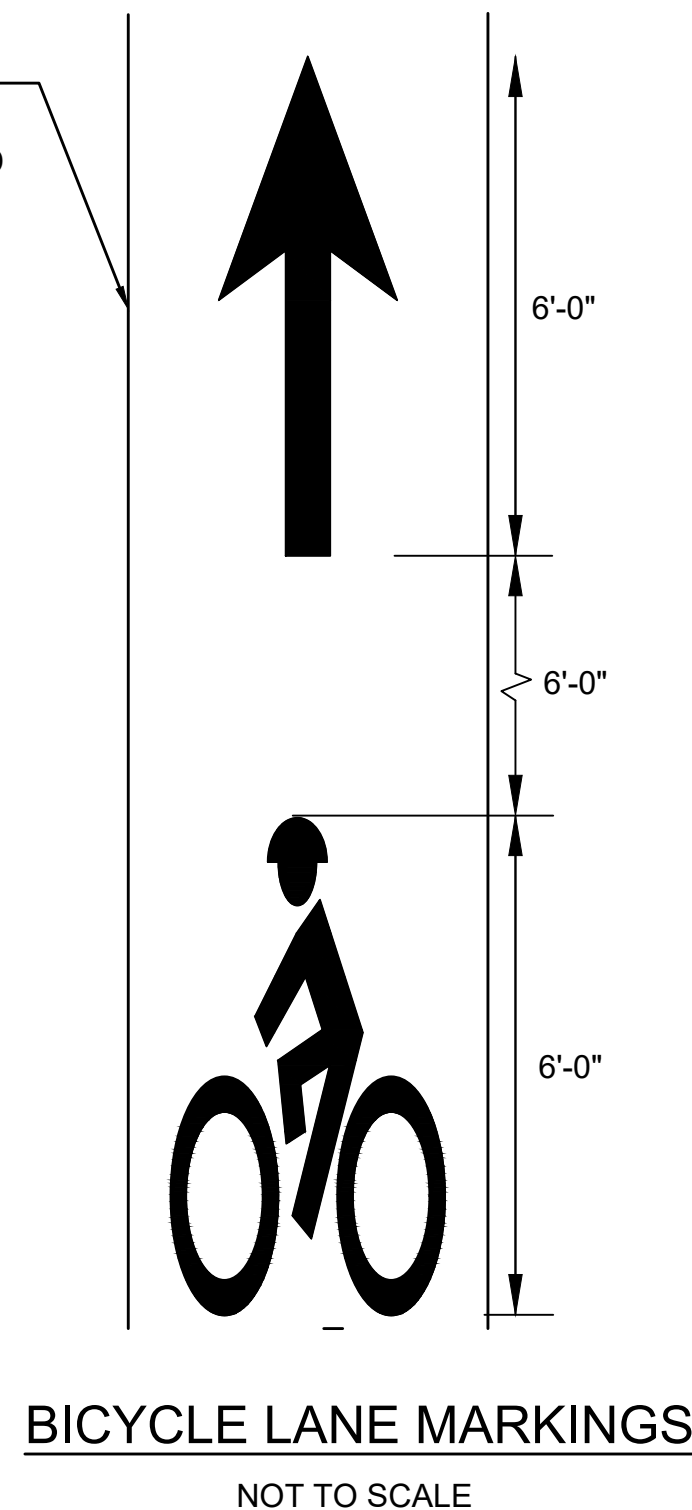
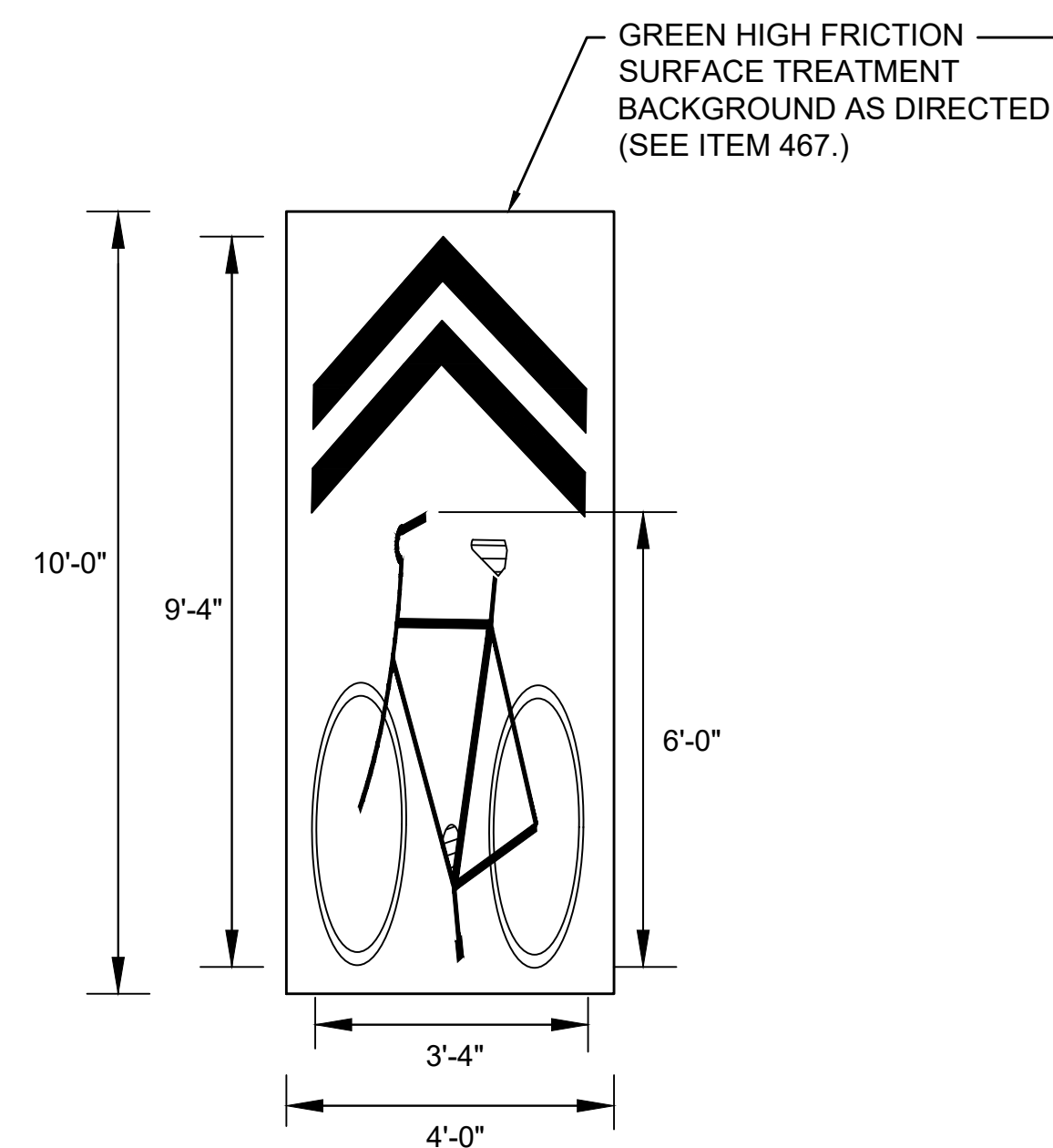
CONSTRUCTION DETAILS - 01

Sheet No.

09

AS NOTED





NOTE: CONTRACTOR SHALL FIELD VERIFY ROADWAY WIDTHS TO DETERMINE PAVEMENT MARKING LAYOUT FOR VERIFICATION AND APPROVAL BY THE CITY PRIOR TO IMPLEMENTING.



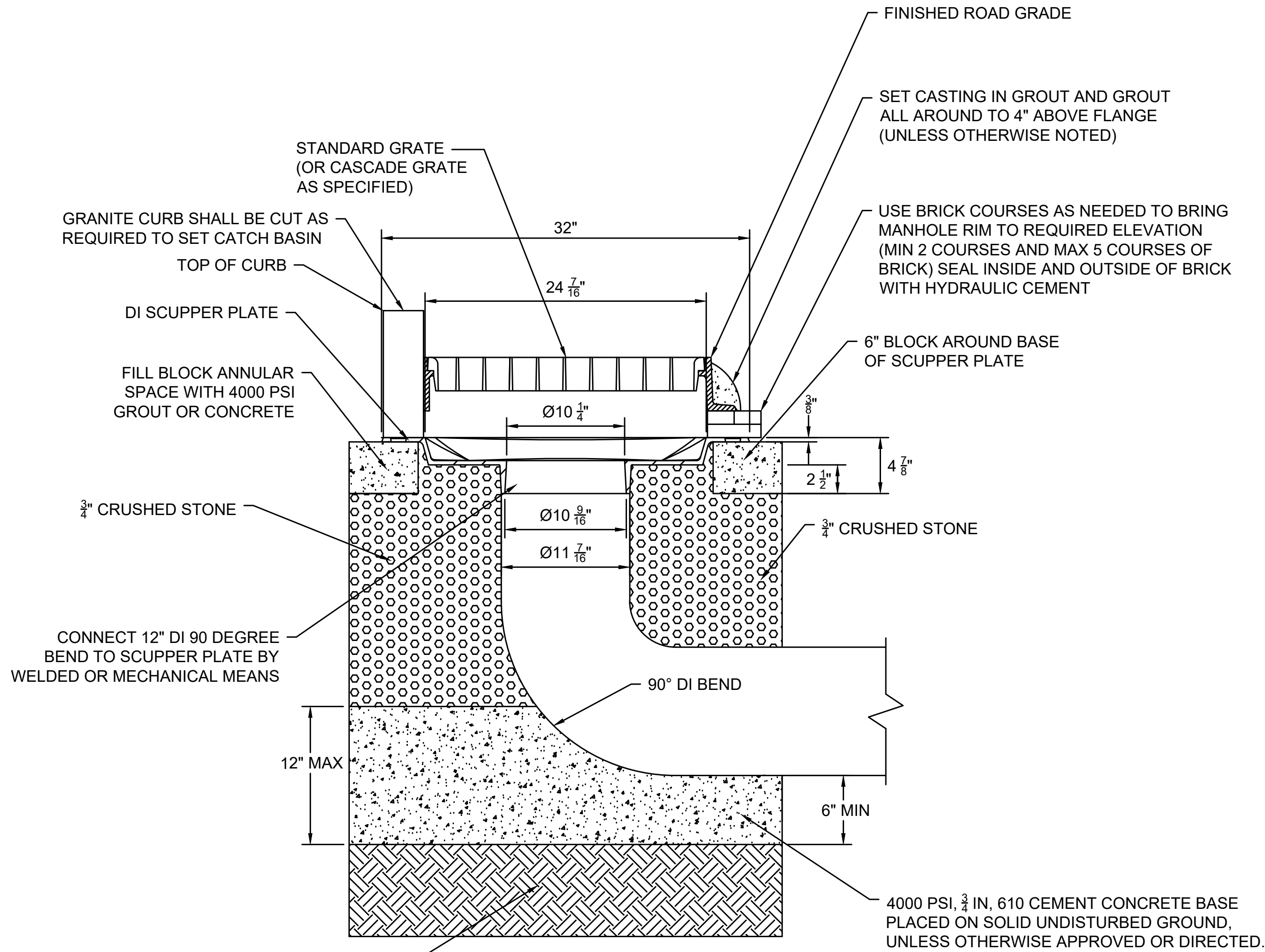
			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	BLH
MARK	DATE	DESCRIPTION	Approved by	JDF

Scale	NTS
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	KMB
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet06\_Construction Details.dwg Plot Date: Aug 02 2019 3:13pm



**SPECIAL CATCH BASIN DETAIL (ITEM 204.11)**  
NOT TO SCALE



			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS		Sheet No.
CONSTRUCTION DETAILS - 03		11
		AS NOTED



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet07\_WCR DWY Details.dwg Plot Date: Aug 02 2019 3:29pm

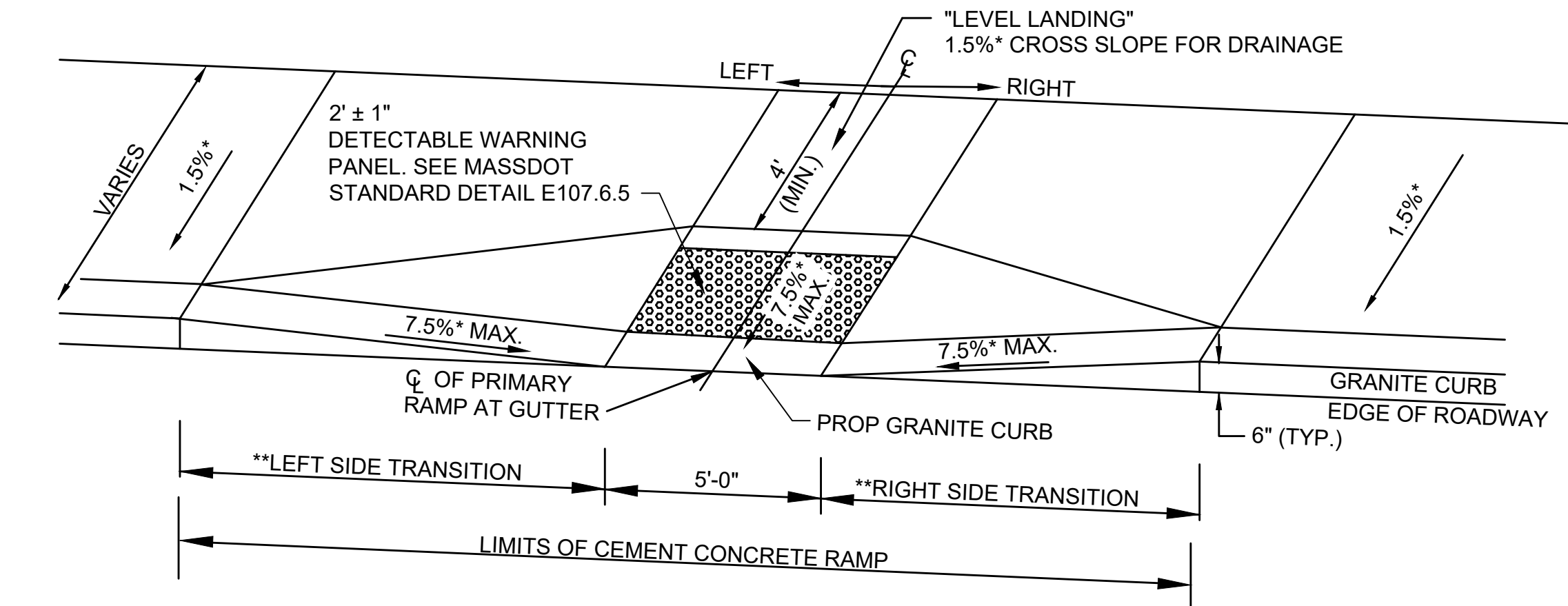


MARK	DATE	DESCRIPTION

Scale	NTS
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	KMB
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS		Sheet No.  12  AS NOTED
WHEELCHAIR RAMP AND DRIVEWAY DETAILS - 01		

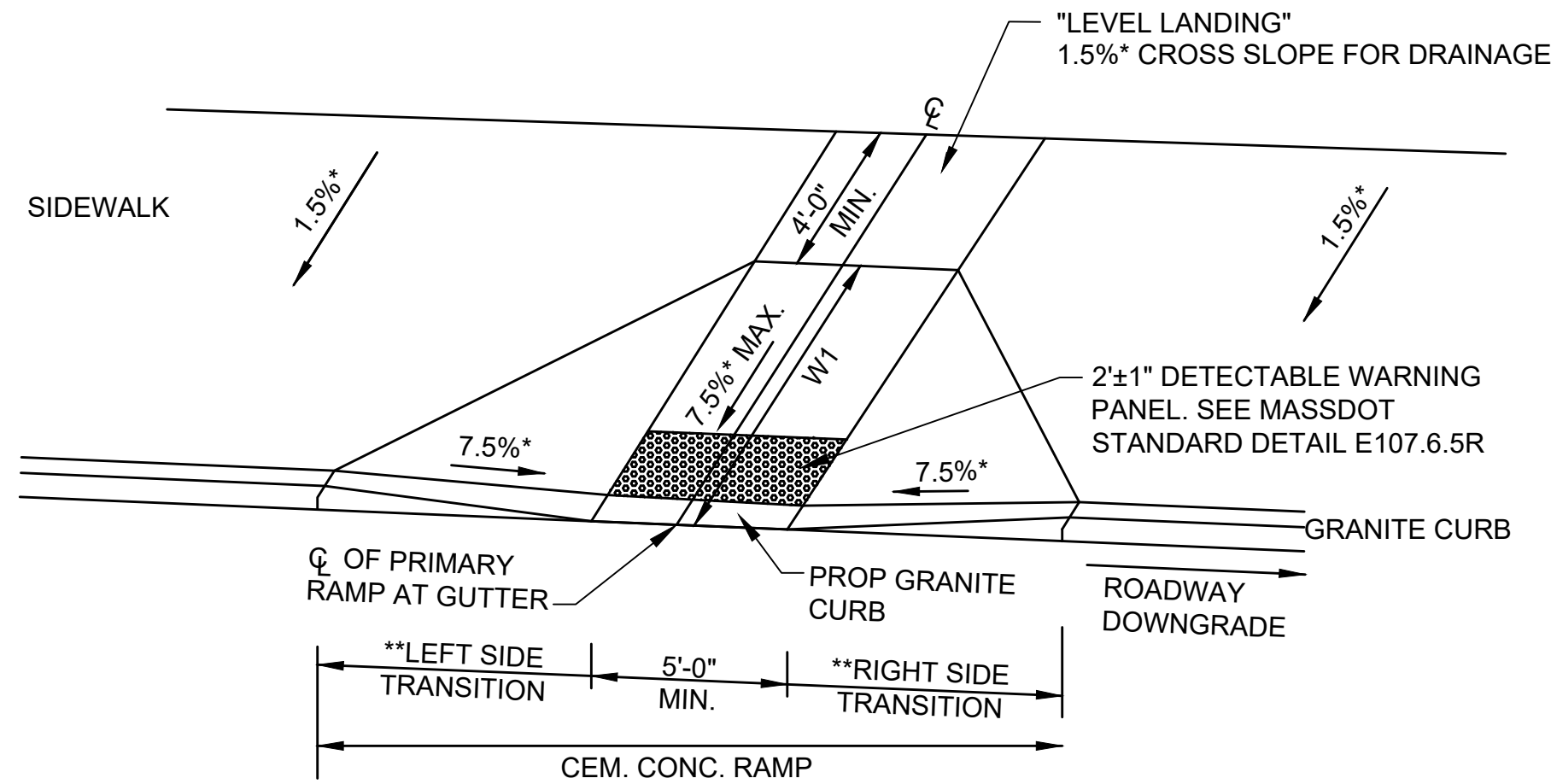


WHEELCHAIR RAMP (SIDEWALK LESS THAN 12'-4" WIDE)

NOT TO SCALE

WCR #	ALIGNMENT	RAMP REFERENCE POINT		LENGTH OF PRIMARY RAMP (W <sub>1</sub> )	DEPTH OF LEVEL LANDING (MIN 4.00')	WIDTH OF SIDEWALK	WIDTH OF RAMP (MIN 5.00')	ROADWAY GUTTER SLOPE (%)	TRANSITION LENGTH	
		STATION	OFFSET						LEFT	RIGHT
1	WALNUT STREET	11+42.22'	26.03' LT	3.34'	4.00'	7.34'	5.00'	-0.20%	6.50'	9.00'
5	WALNUT STREET	13+05.42'	15.60' LT	4.18'	4.07'	8.25'	5.00'	0.60%	6.50'	7.67'
6	WALNUT STREET	13+06.60'	17.23' RT	4.20'	4.02'	8.22'	5.00'	0.36%	*3.25'	9.00'
7	CABOT STREET	5+31.34'	14.21' RT	2.94'	4.29'	7.23'	5.00'	0.58%	6.50'	***4.50'
8	CABOT STREET	5+30.95'	14.50' LT	3.89'	4.01'	7.90'	5.00'	-1.40%	***3.84'	6.50'
9	WALNUT STREET	13+67.18'	16.00' LT	4.41'	4.00'	8.41'	5.00'	0.40%	6.50'	7.67'
10	WALNUT STREET	13+69.27'	17.01' RT	4.89'	4.18'	9.07'	5.00'	-1.34%	7.67'	***3.25'
11	OTIS STREET	5+45.16'	17.44' LT	3.09'	4.00'	7.09'	5.00'	-0.59%	7.67'	6.50'
12	OTIS STREET	5+41.48'	19.41' RT	3.24'	4.00'	7.24'	5.00'	1.40%	6.50'	7.67'
13	CLAFLIN PLACE	5+24.80'	9.92' RT	3.25'	4.81'	8.06'	5.00'	-1.04%	11.00'	6.50'
14	CLAFLIN PLACE	5+25.11'	9.97' LT	4.57'	4.32'	8.89'	5.00'	0.23%	6.50'	11.00'
15	WALNUT STREET	16+00.92'	16.00' LT	4.00'	4.00'	8.00'	5.00'	0.66%	6.50'	7.67'
16	WALNUT STREET	16+00.90'	16.00' RT	4.50'	4.00'	8.50'	5.00'	-0.54%	6.50'	9.00'
20	WALNUT STREET	18+17.73'	16.45' RT	4.79'	3.64'	8.43'	5.00'	1.54%	***3.84'	6.50'
21	WASHINGTON PARK	5+28.77'	16.35' RT	4.30'	3.26'	7.56'	5.00'	1.48%	***3.84'	6.50'
22	WASHINGTON PARK	5+30.84'	16.44' LT	4.00'	4.13'	8.13'	5.00'	-0.70%	6.50'	9.00'
23	WALNUT STREET	19+47.71'	15.00' RT	6.15'	4.01'	10.16'	5.00'	1.61%	6.50'	9.00'
25	HIGHLAND AVENUE	5+35.19'	16.00' LT	4.74'	6.07'	10.81'	5.00'	0.17%	***3.25'	11.00'
26	HIGHLAND AVENUE	5+33.81'	15.85' RT	4.28'	4.77'	9.05'	5.00'	-2.01%	11.00'	6.50'
28	WALNUT STREET	20+13.39'	15.00' RT	7.48'	4.01'	11.49'	5.00'	-0.23%	6.50'	***4.50'
29	MADISON AVENUE	5+32.00'	15.19' RT	5.95'	4.00'	9.95'	5.00'	1.00%	6.50'	7.67'
30	MADISON AVENUE	5+31.73'	14.99' LT	5.59'	4.00'	9.59'	5.00'	-0.39%	***5.50'	6.50'
31	WALNUT STREET	21+68.77'	19.89' RT	5.68'	4.00'	9.68'	5.36'	-0.61%	6.50'	***5.50'
33	WALNUT STREET	23+51.40'	14.00' RT	4.88'	4.00'	8.88'	5.00'	0.31%	9.00'	6.50'
34	AUSTIN STREET	10+28.39'	26.14' LT	4.09'	4.18'	8.27'	5.00'	-1.08%	9.00'	6.50'
35	AUSTIN STREET	10+46.22'	13.35' LT	3.44'	4.33'	7.77'	5.00'	-0.45%	9.00'	6.50'
46	PHILIP BRAM WAY	1+22.76'	12.10' LT	3.39'	4.71'	8.10'	5.00'	0.33%	9.00'	N/A

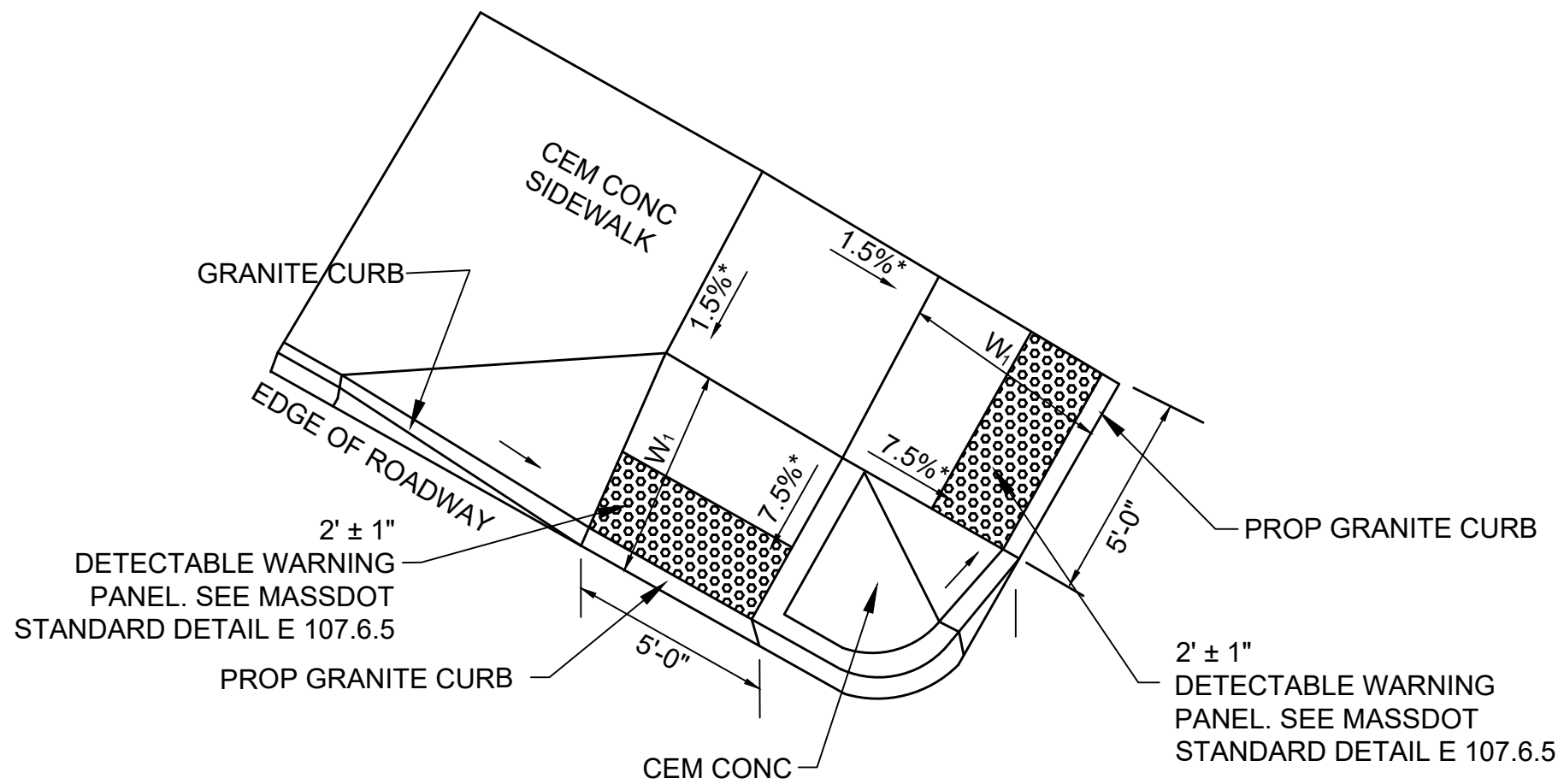
- NOTES:
- SEE CONSTRUCTION STANDARD E107.3.0
  - \* CONSTRUCTION TOLERANCE ±0.5%
  - \*\* TRANSITION CURB LENGTH (FOR HIGH SIDE TRANSITION LENGTH, SEE MASSDOT STANDARD DETAIL E107.9.0. FOR LOW SIDE TRANSITION LENGTH = 6'6" UNLESS OTHERWISE DEPICTED ON PLAN.
  - TRANSITION LENGTHS TO BE SET IN THE FIELD BASED ON ACTUAL FIELD CONDITIONS AT THE DIRECTION OF THE CITY AND OR ENGINEER
  - \*\*\* INDICATES 3 INCH CURB REVEAL



WHEELCHAIR RAMP (SIDEWALK GREATER THAN 12'-4" WIDE)

NOT TO SCALE

WCR #	ALIGNMENT	RAMP REFERENCE POINT		LENGTH OF RAMP (W <sub>1</sub> )	WIDTH OF RAMP (MIN 5.00')	DEPTH OF LEVEL LANDING (MIN 4.00')	ROADWAY GUTTER SLOPE (±)	TRANSITION LENGTH	
		STATION	OFFSET					LEFT	RIGHT
19	WALNUT STREET	18+19.27'	17.45' LT	7.10'	5.00'	5.07'	-0.34%	***4.66'	8.96'
24	WALNUT STREET	19+56.45'	19.40' LT	8.12'	5.00'	4.45'	-1.53%	6.50'	***5.50'
27	WALNUT STREET	20+13.13'	14.86' LT	10.51'	5.00'	4.10'	0.43%	11.00'	6.50'
32	WALNUT STREET	21+68.90'	14.00' LT	9.72'	5.00'	4.00'	-0.50%	9.00'	6.50'
36	AUSTIN STREET	10+49.05'	28.39' RT	11.76'	5.00'	5.00'	1.75%	6.50'	***7.50'
37	WALNUT STREET	24+20.94'	38.99' LT	7.53'	5.00'	5.00'	2.25%	***3.25'	15.00'
40	WALNUT STREET	24+18.62'	15.23' RT	5.79'	5.00'	12.00'	-1.14%	9.00'	6.50'
41	NEWTONVILLE AVENUE	5+32.94'	22.81' RT	8.07'	5.00'	4.00'	-1.03%	6.50'	6.50'
42	NEWTONVILLE AVENUE	5+31.72'	12.31' LT	9.11'	5.00'	4.00'	-3.91%	14.00'	6.50'
43	HIGHLAND AVENUE	6+35.07'	12.02' LT	8.15'	5.00'	5.00'	0.69%	6.50'	9.00'
44	HIGHLAND AVENUE	6+34.51'	12.15' RT	7.93'	5.00'	4.00'	-0.95%	***3.25'	N/A
45	PHILIP BRAM WAY	1+23.20'	13.13' RT	2.67'	5.00'	3.79'	-1.03%	7.67'	***3.25'
50	AUSTIN STREET	14+04.53'	17.96' RT	7.00'	5.00'	4.00'	-0.66%	N/A	7.67'
51	AUSTIN STREET	14+28.99'	17.26' RT	7.00'	5.00'	4.00'	-0.58%	6.50'	N/A



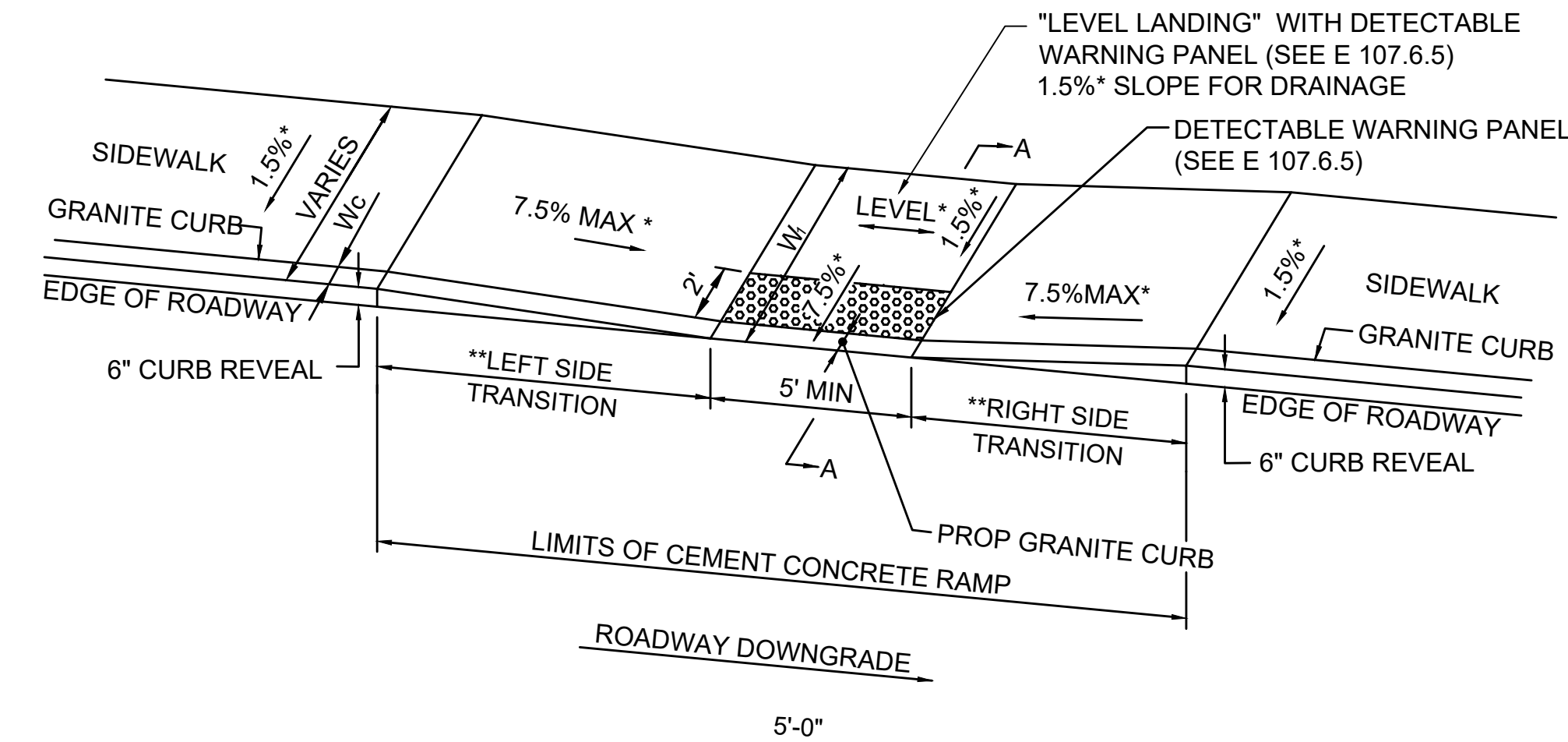
WHEELCHAIR RAMP WITH SHARED LEVEL LANDING

NOT TO SCALE

WCR #	ALIGNMENT	RAMP REFERENCE POINT		LENGTH OF RAMP (W <sub>1</sub> )	WIDTH OF RAMP (MIN 5.00')	DEPTH OF LEVEL LANDING (MIN 4.00')	ROADWAY GUTTER SLOPE (±)	TRANSITION LENGTH	
		STATION	OFFSET					LEFT	RIGHT
48	AUSTIN STREET	12+18.42'	23.87' RT	6.68'	6.00'	5.00'	2.00%	***3.25'	N/A
49	AUSTIN STREET	12+27.44'	12.05' RT	8.65'	5.00'	5.85'	-0.70%	9.00'	N/A



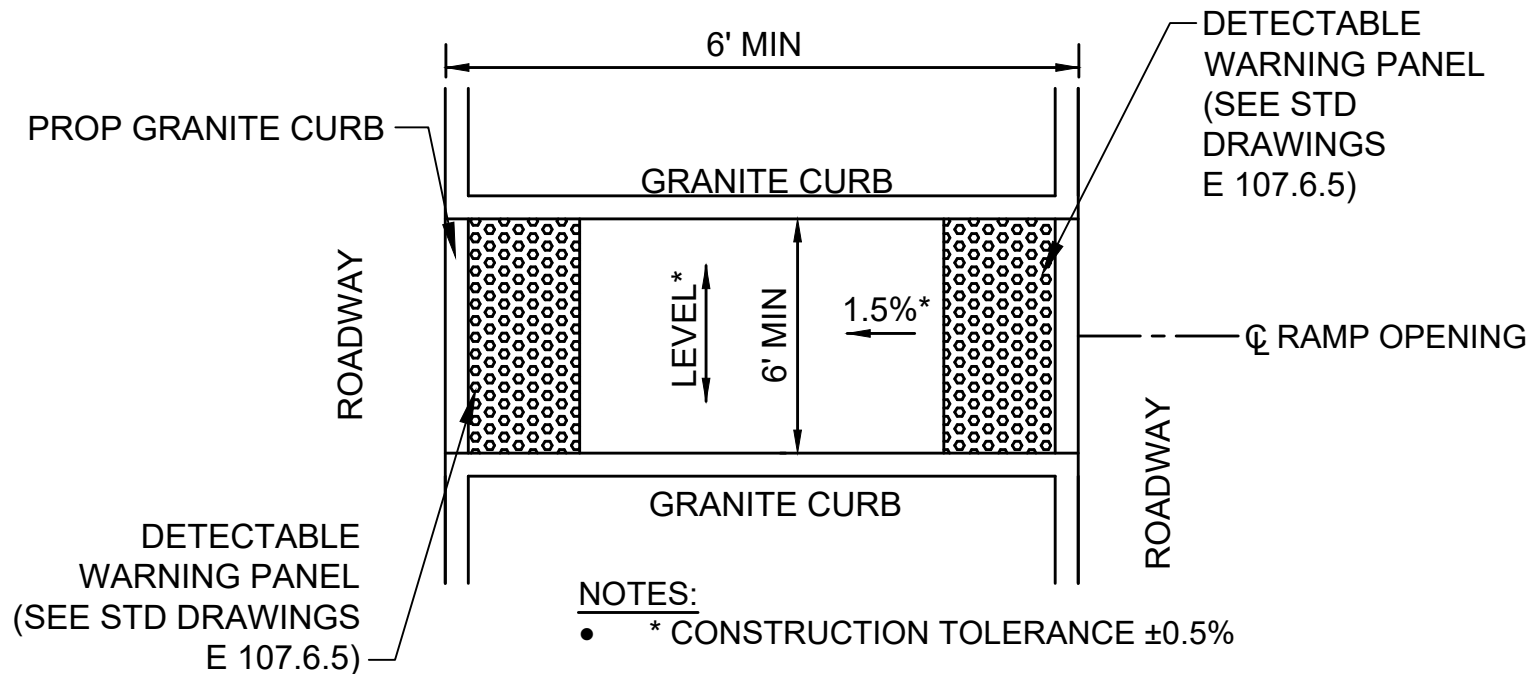
Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet07\_WCR DWY Details.dwg Plot Date: Aug 02 2019 3:29pm



WHEELCHAIR RAMPS ON LESS THAN 12'-4" SIDEWALK WITH DETECTABLE WARNING PANEL

N.T.S.

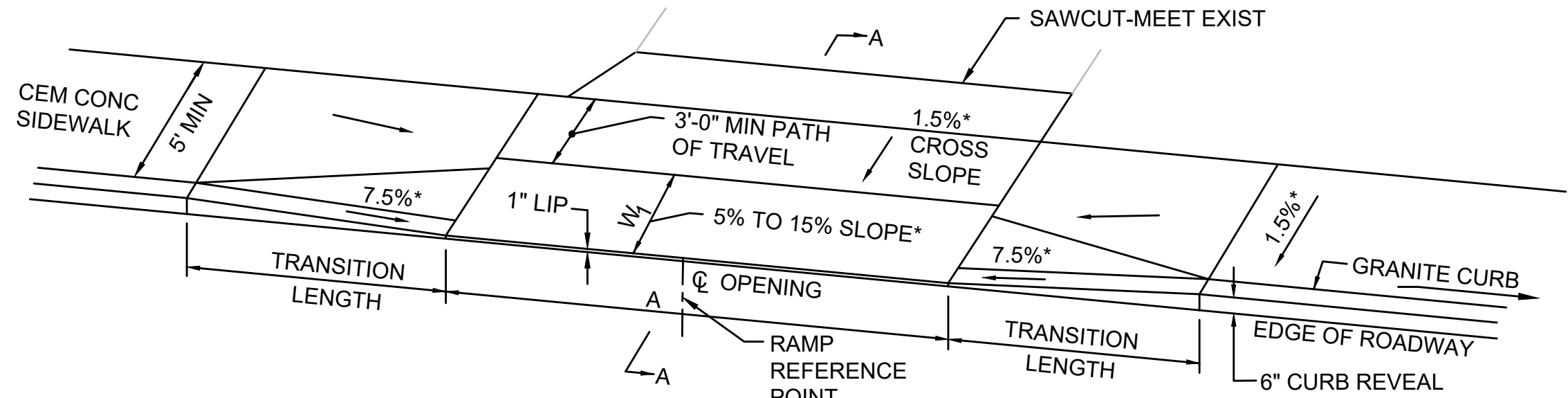
WCR #	ALIGNMENT	RAMP REFERENCE POINT		LENGTH OF PRIMARY RAMP (W <sub>1</sub> )	WIDTH OF RAMP (MIN 5.00')	ROADWAY GUTTER SLOPE (%)	TRANSITION LENGTH	
		STATION	OFFSET				LEFT	RIGHT
17	WALNUT PLACE	5+30.71'	16.12' LT	5.79'	5.00'	0.67%	6.50'	9.00'
18	WALNUT PLACE	5+29.42'	17.53' RT	6.22'	5.00'	-0.37%	9.00'	***3.25'



WHEELCHAIR RAMP AT SPLITTER ISLANDS

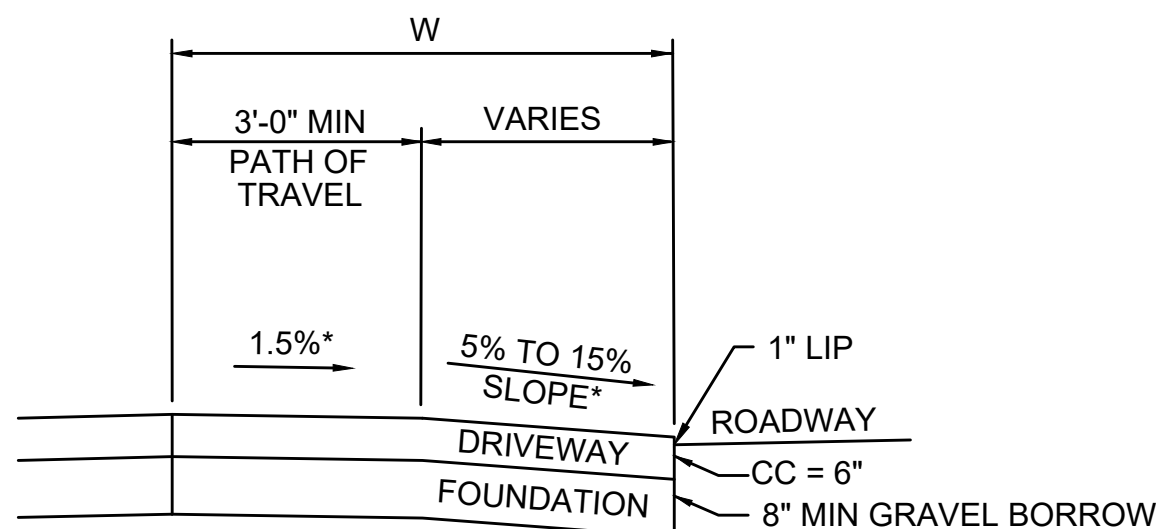
NOT TO SCALE

WCR #	ALIGNMENT	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF RAMP (MIN 5.00')
		STATION	OFFSET		
2	ELM ROAD	5+23.41'	14.78' RT	6.00'	6.00'
3	RUSSELL COURT	5+23.19'	11.40' LT	6.00'	6.00'
38	WALNUT STREET	24+20.45'	18.60' LT	6.00'	6.00'
39	WALNUT STREET	24+20.00'	5.21' LT	6.00'	6.00'



DRIVEWAY APRONS (WITHOUT CURB RETURNS)

NOT TO SCALE



SECTION A-A

LEGEND:

HSL HIGH SIDE FRONT TRANSITION LENGTH (SEE E 107.9.0)

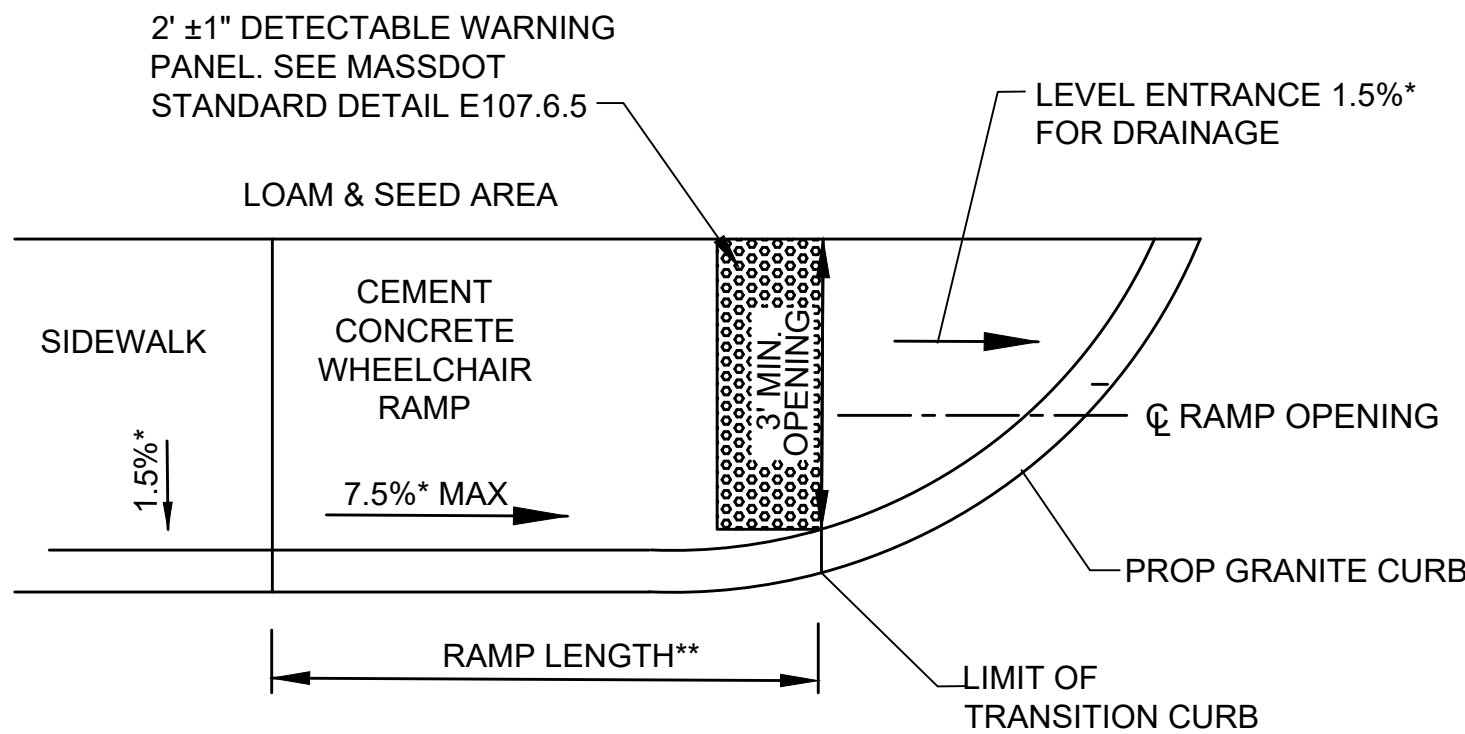
W SIDEWALK WIDTH

CC CEMENT CONCRETE

HMA HOT MIX ASPHALT

\* TOLERANCE FOR CONSTRUCTION ±0.5%

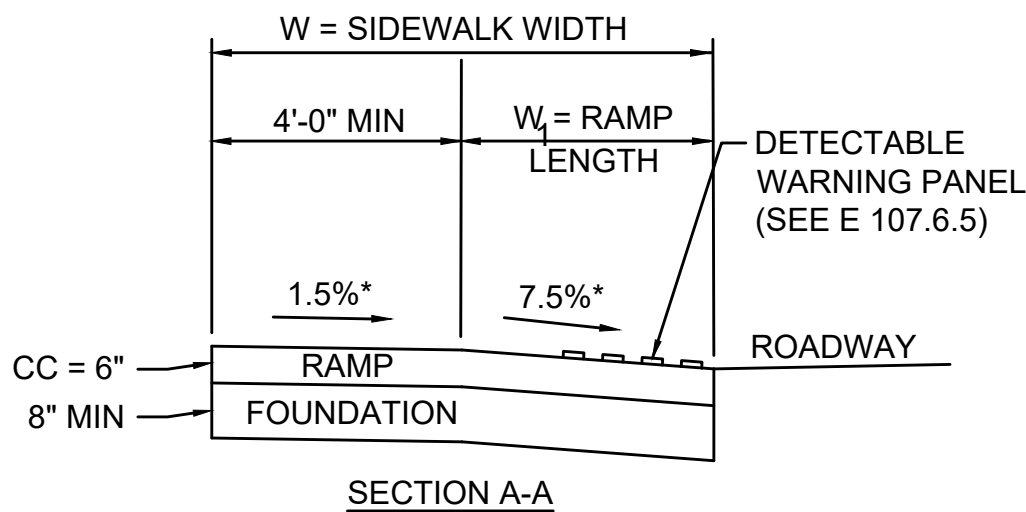
\*\*\* INDICATES 3 INCH CURB REVEAL



CONTINUOUS DIRECTION WHEELCHAIR RAMP DETAIL

NOT TO SCALE

WCR #	ALIGNMENT	RAMP REFERENCE POINT		LENGTH OF LEVEL LANDING	WIDTH OF RAMP (MIN 3.00')	WIDTH OF SIDEWALK (W)	TRANSITION	
		STATION	OFFSET				ROADWAY GRADE (±)	L
4	RUSSELL COURT	5+21.56'	12.03' RT	6.00'	6.00'	5.00'	0.65%	6.50'
47	AUSTIN STREET	11+93.99'	23.88' RT	6.50'	6.00'	8.00'	-0.70%	7.67'



SECTION A-A

LEGEND:

HSL HIGH SIDE FRONT TRANSITION LENGTH (SEE E 107.9.0)

W SIDEWALK WIDTH

W<sub>1</sub> CURB WIDTH

W<sub>1</sub> PERPENDICULAR RAMP LENGTH

CC CEMENT CONCRETE

\* TOLERANCE FOR CONSTRUCTION ±0.5%

USABLE SIDEWALK WIDTH PER AAB = W-W<sub>1</sub>

USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'0"

RAMP LENGTH, W<sub>1</sub> = W - 4'0" MIN

WHEELCHAIR RAMPS WILL BE FITTED WITH DETECTABLE WARNING PANELS (SEE E 107.6.5)

DWY #	ALIGNMENT	DWY REFERENCE POINT C		LENGTH OF PRIMARY RAMP (W <sub>1</sub> )	PATH OF TRAVEL (MIN 3.00 FT)	WIDTH OF DRIVEWAY RAMP (A)	ROADWAY GUTTER SLOPE (±)	TRANSITION LENGTH (FT)	
		STATION	OFFSET					LEFT	RIGHT
1	WALNUT STREET	11+13.54'	20.63' RT	4.37'	3.00'	17.21'	0.53%	6.50'	7.67'
2	WALNUT STREET	12+12.96'	18.45' RT	4.65'	4.00'	14.24'	0.11%	6.50'	7.67'
3	WALNUT STREET	15+71.93'	16.00' LT	4.00'	4.00'	11.92'	0.67%	6.50'	7.67'
4	WALNUT STREET	16+27.77'	16.00' LT	4.00'	4.00'	12.13'	0.66%	6.50'	7.67'
5	WALNUT STREET	17+02.50'	16.00' LT	4.00'	4.00'	12.84'	0.65%	6.50'	7.67'
6	WALNUT STREET	17+37.85'	16.00' LT	4.00'	4.00'	18.83'	0.66%	6.50'	7.67'
7	WALNUT STREET	19+93.78'	15.00' RT	11.25'	8.00'	9.90'	0.89%	***3.25'	9.00'
8	AUSTIN STREET	11+15.84'	19.00' LT	4.43'	4.00'	16.28'	0.25%	6.50'	7.67'
9	HIGHLAND AVENUE	6+11.84'	19.00' RT	4.81'	5.00'	26.00'	-0.52%	N/A	6.50'
10	HIGHLAND AVENUE	6+74.15'	12.00' LT	6.33'	4.00'	19.80'	0.08%	6.50'	7.67'
11	PHILIP BRAM WAY	2+44.84'	11.50' RT	2.50'	3.00'	24.00'	2.73%	6.50'	11.00'
12	PHILIP BRAM WAY	3+08.59'	11.40' RT	2.50'	3.00'	16.60'	0.90%	6.50'	9.00'



**Environmental Partners**  
A partnership for engineering solutions. GROUP

			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

WHEELCHAIR RAMP AND DRIVEWAY DETAILS - 02

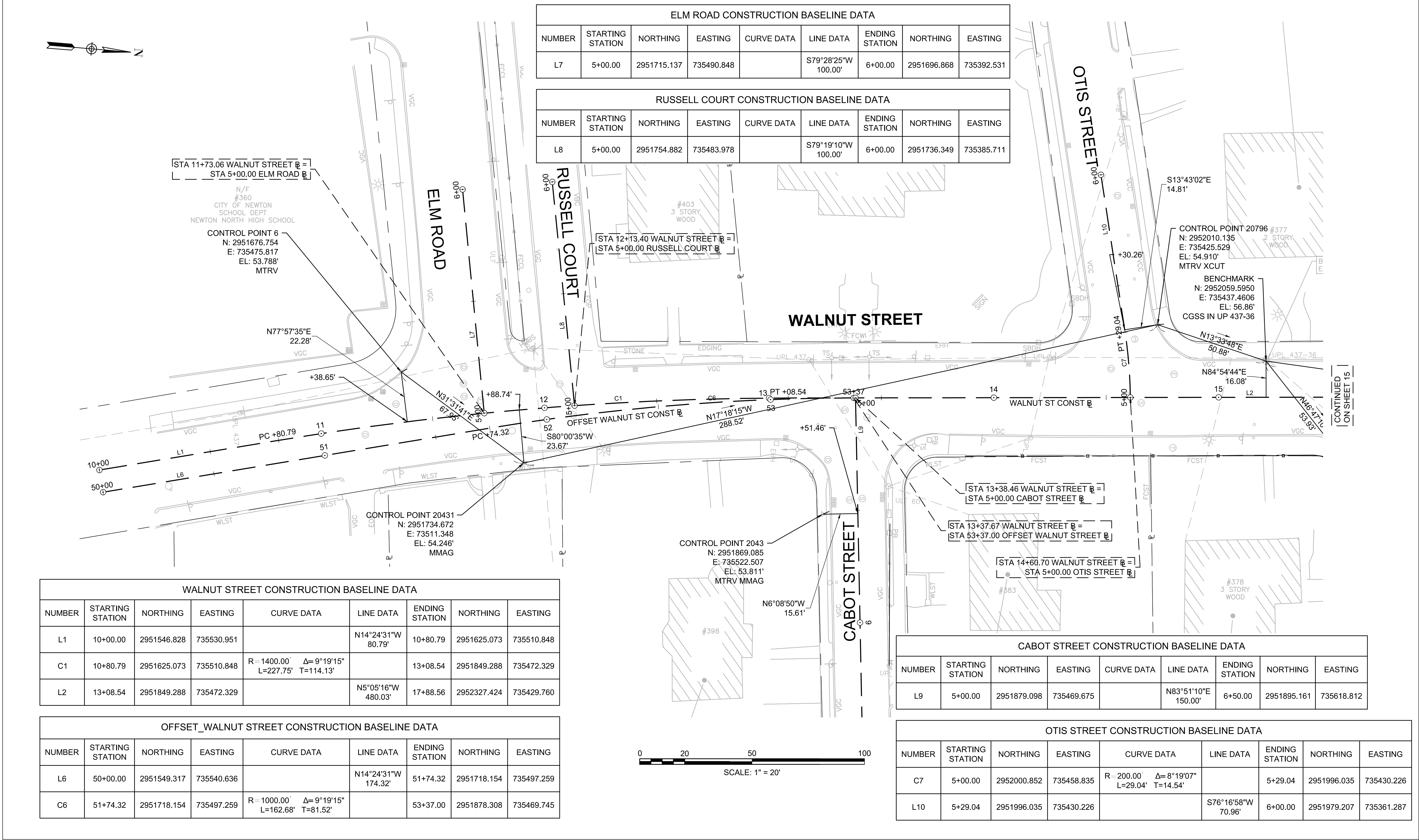
Sheet No.

13

AS NOTED



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet02\_Survey Control Plans.dwg Plot Date: Aug 02,2019-3:35pm

















Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\05\_Construction Plans.dwg Plot Date: Aug 02, 2019 4:19pm



				Scale	AS NOTED
				Date	AUGUST 2019
				Job No.	R326-1605.00
				Designed by	JRC
				Drawn by	KMB
				Checked by	BLH
				Approved by	JDF
MARK	DATE	DESCRIPTION			

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

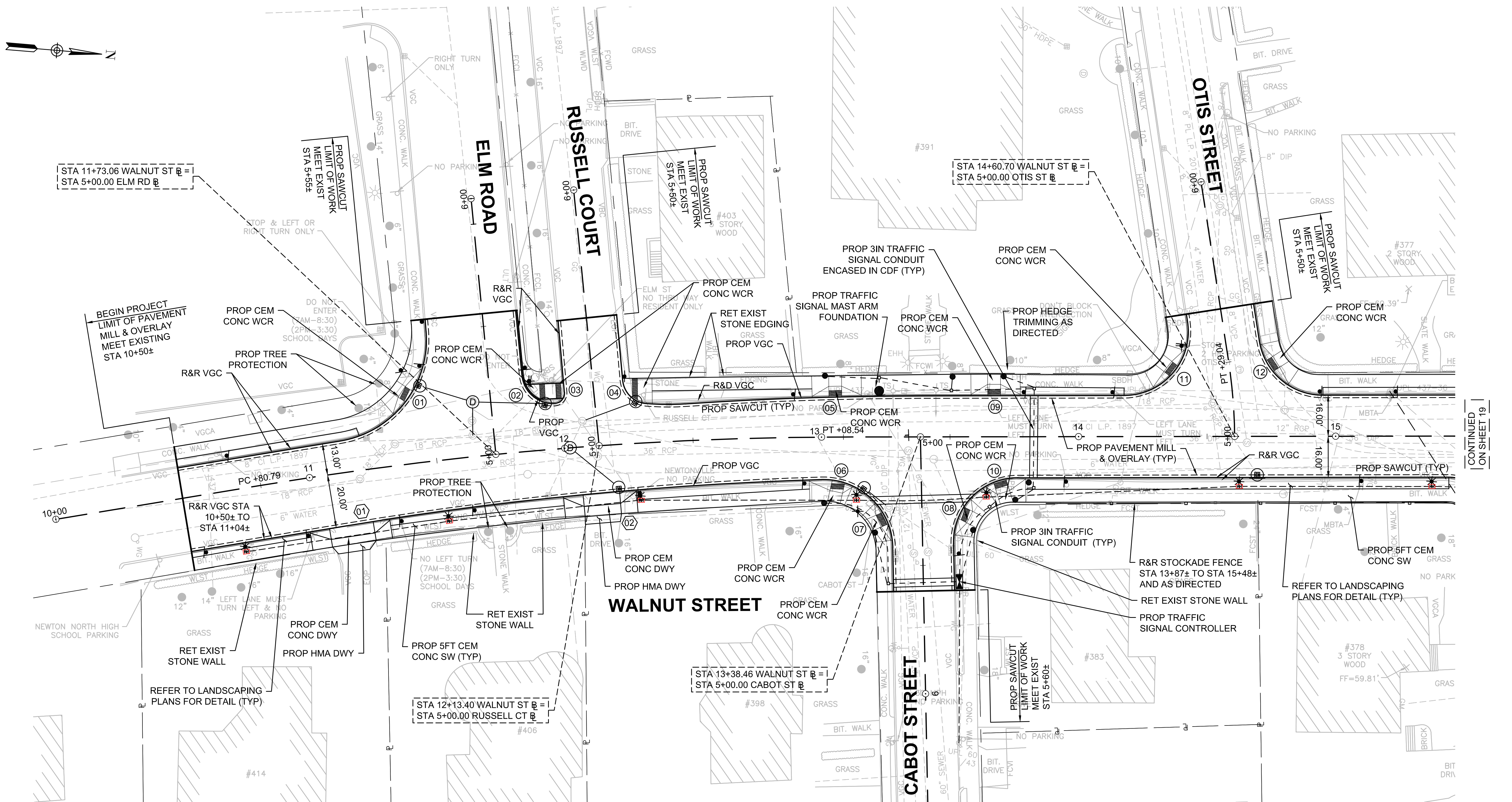
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

CONSTRUCTION PLAN - 01

Sheet No.

18

AS NOTED



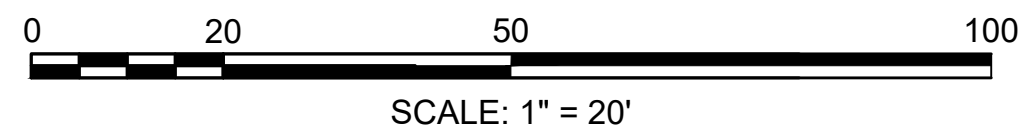
NOTES:

1. REMOVE AND STACK ALL EXISTING STRAIGHT VERTICAL GRANITE CURB UNLESS OTHERWISE NOTED AND AS DIRECTED BY THE CITY.
2. REMOVE AND STACK ALL EXISTING CURVED VERTICAL GRANITE CURB UNLESS OTHERWISE NOTED AND AS DIRECTED BY THE CITY.
3. CONTRACTOR SHALL TEST PIT ALL POTENTIAL UTILITY CONFLICTS WITH THE PROPOSED DESIGN AND AS NOTED PRIOR TO ORDERING AND STOCK PILING ANY MATERIAL INCLUDING BUT NOT LIMITED TO DRAINAGE STRUCTURES, DRAINAGE PIPE, TRAFFIC SIGNAL EQUIPMENT, AND ANY OTHER EQUIPMENT AS DIRECTED.
4. PROPOSED BACK OF SIDEWALK SHALL MEET ALL EXISTING DOOR SILLS/OPENINGS. ANY DISCREPANCIES OR CONFLICT SHALL BE IMMEDIATELY REPORTED TO THE CITY AND OR ENGINEER FOR RESOLUTION PRIOR TO CONTINUING WORK.

FOR PROFILE SEE SHEET 22 & 25  
FOR LANDSCAPING PLAN SEE SHEET 59  
FOR LIGHTING PLAN SEE SHEET 74

LEGEND

- # WHEELCHAIR RAMP NUMBER
- # DRIVEWAY NUMBER





Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet05\_Construction Plans.dwg Plot Date: Aug 02, 2019 4:19pm



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	BLH
MARK	DATE	DESCRIPTION	Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

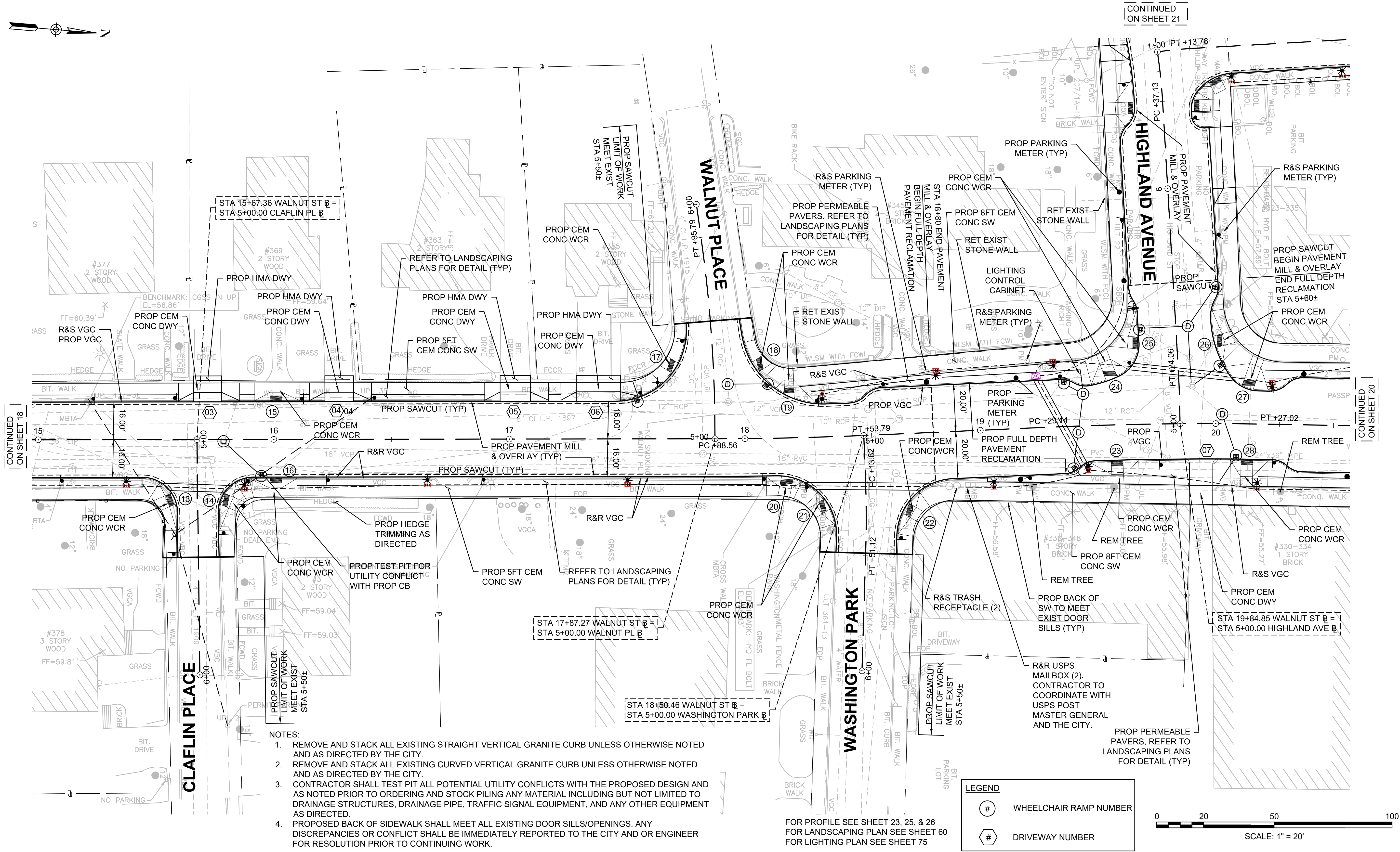
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

CONSTRUCTION PLAN - 02

Sheet No.

19

AS NOTED









Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet05\_Construction Plans.dwg Plot Date: Aug 07 2019 10:23am



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	KMB
			Checked by	BLH
MARK	DATE	DESCRIPTION	Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

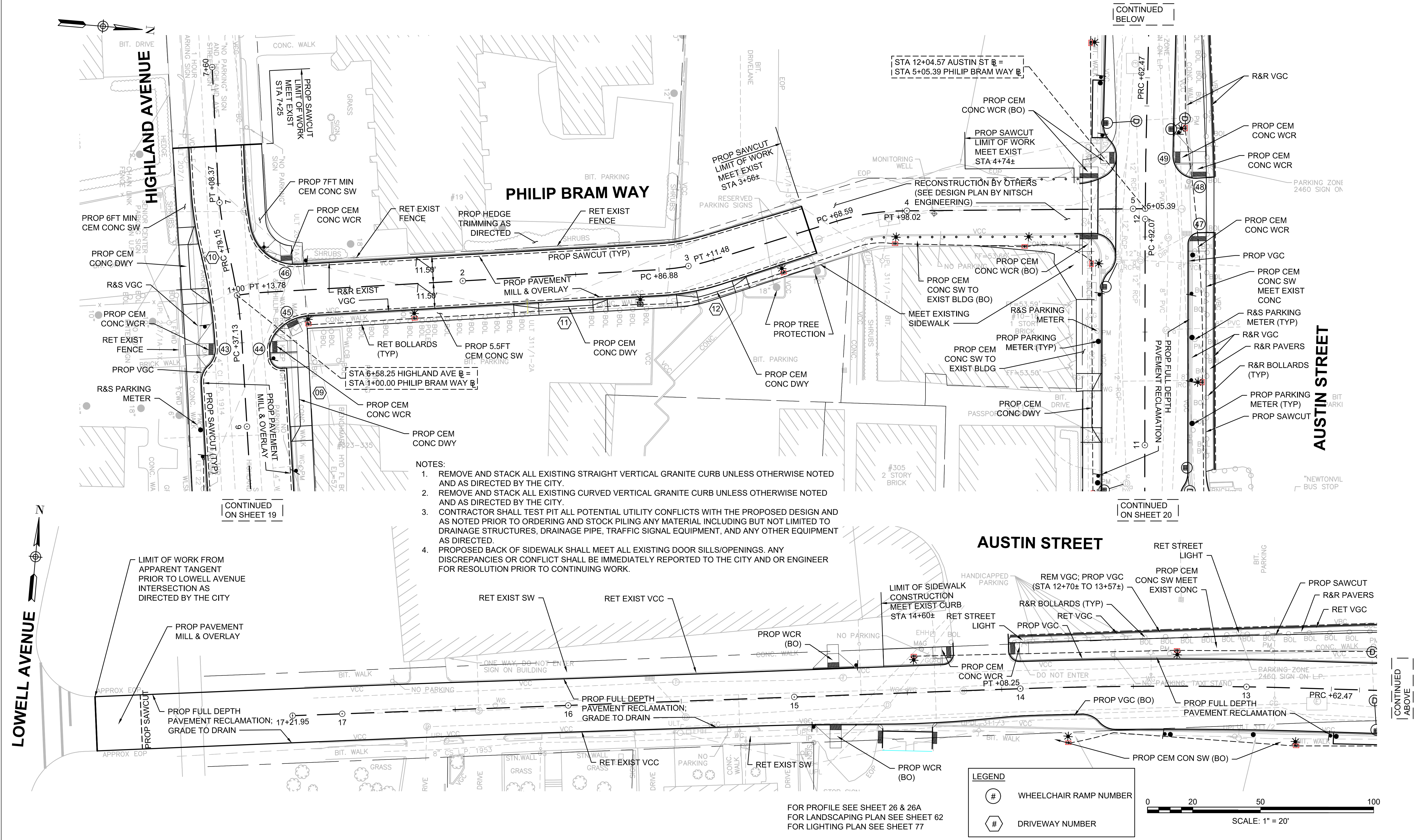
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

CONSTRUCTION PLAN - 04

Sheet No.

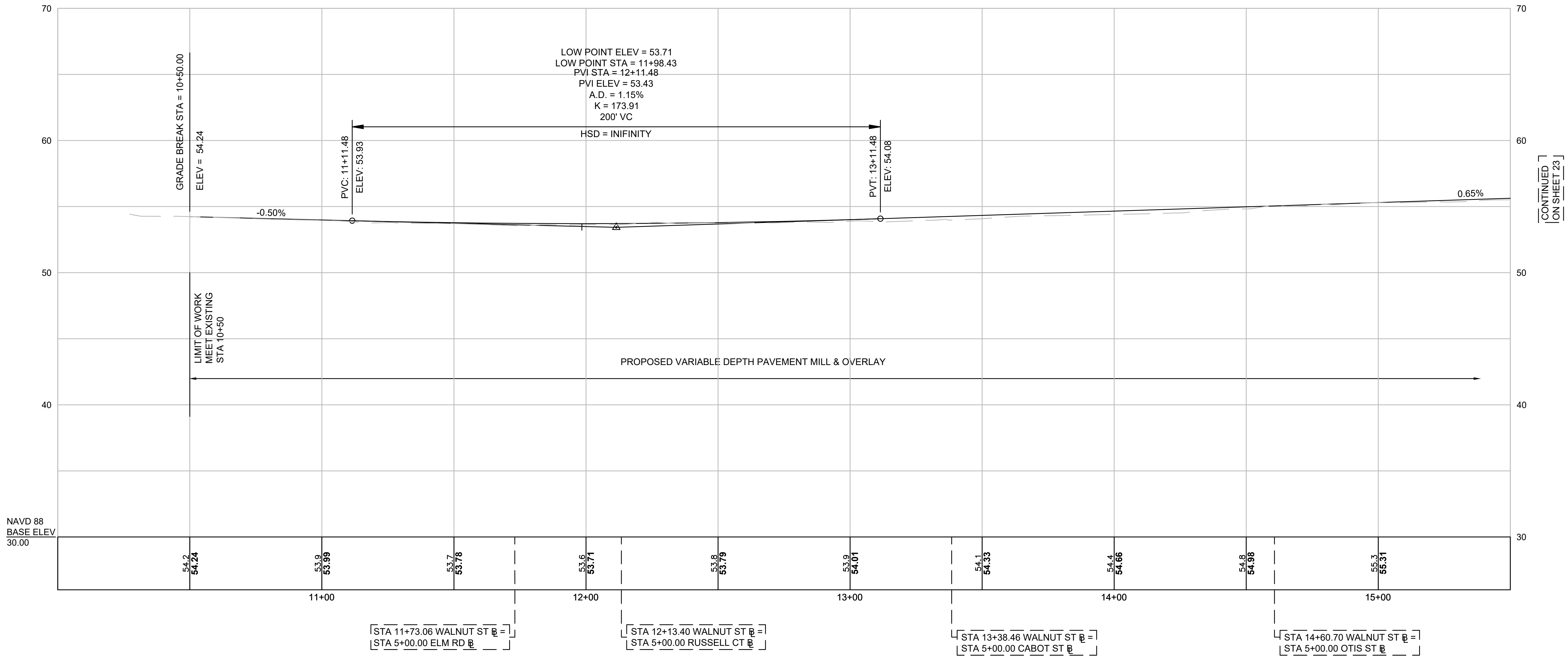
21

AS NOTED

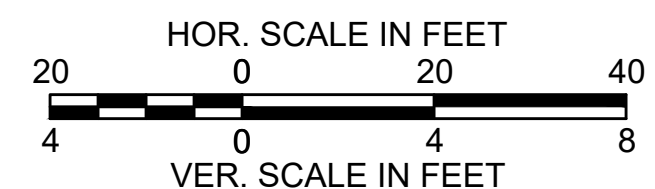




Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\10\_Profiles.dwg Plot Date: Aug 02, 2019 4:24pm



CONTINUED  
ON SHEET 23



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

PROFILE - WALNUT STREET - 01

Sheet No.

22

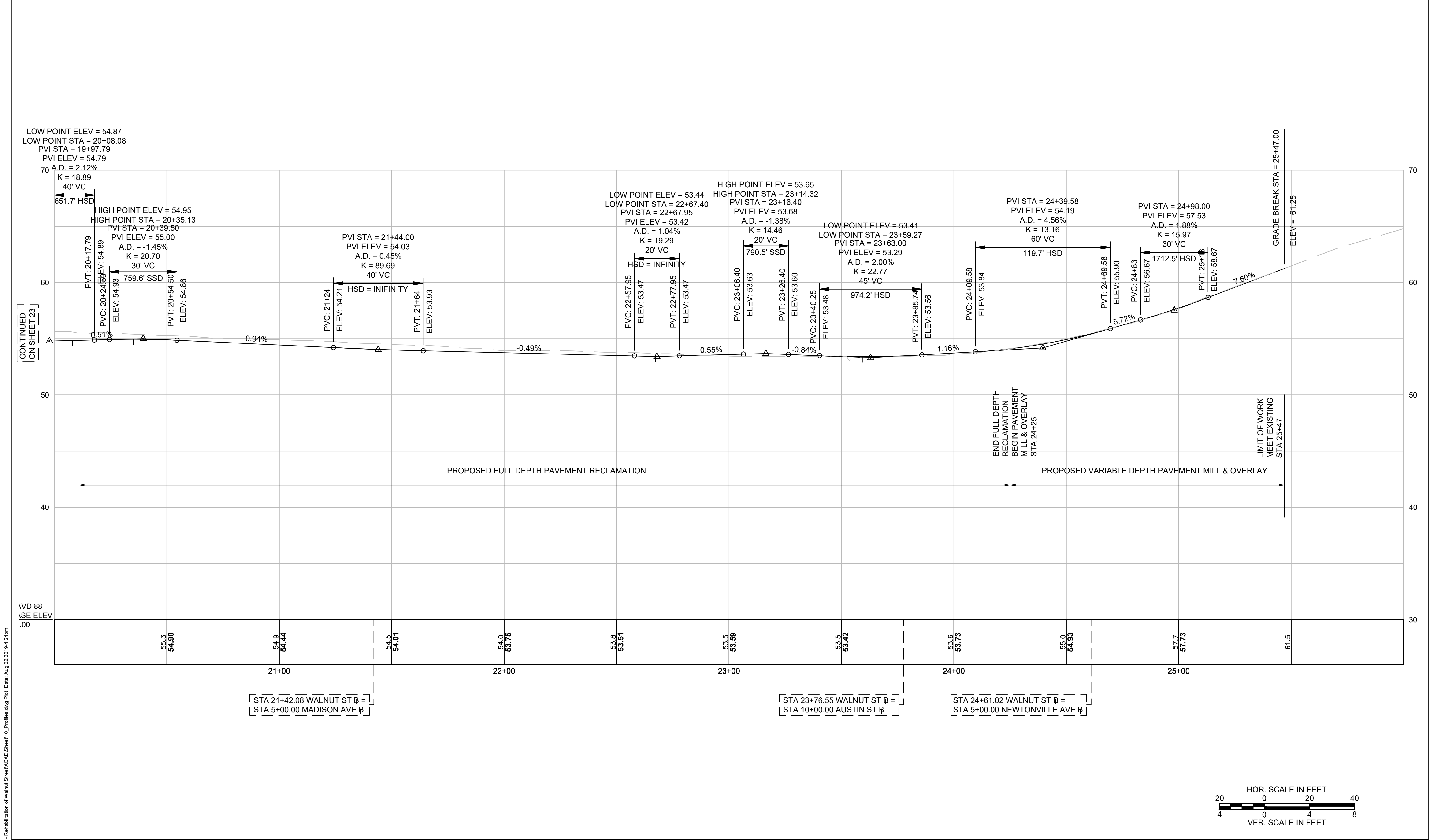
AS NOTED







Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\10\_Profiles.dwg Plot Date: Aug 02, 2019 4:24pm



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

PROFILE - WALNUT STREET - 03

Sheet No.

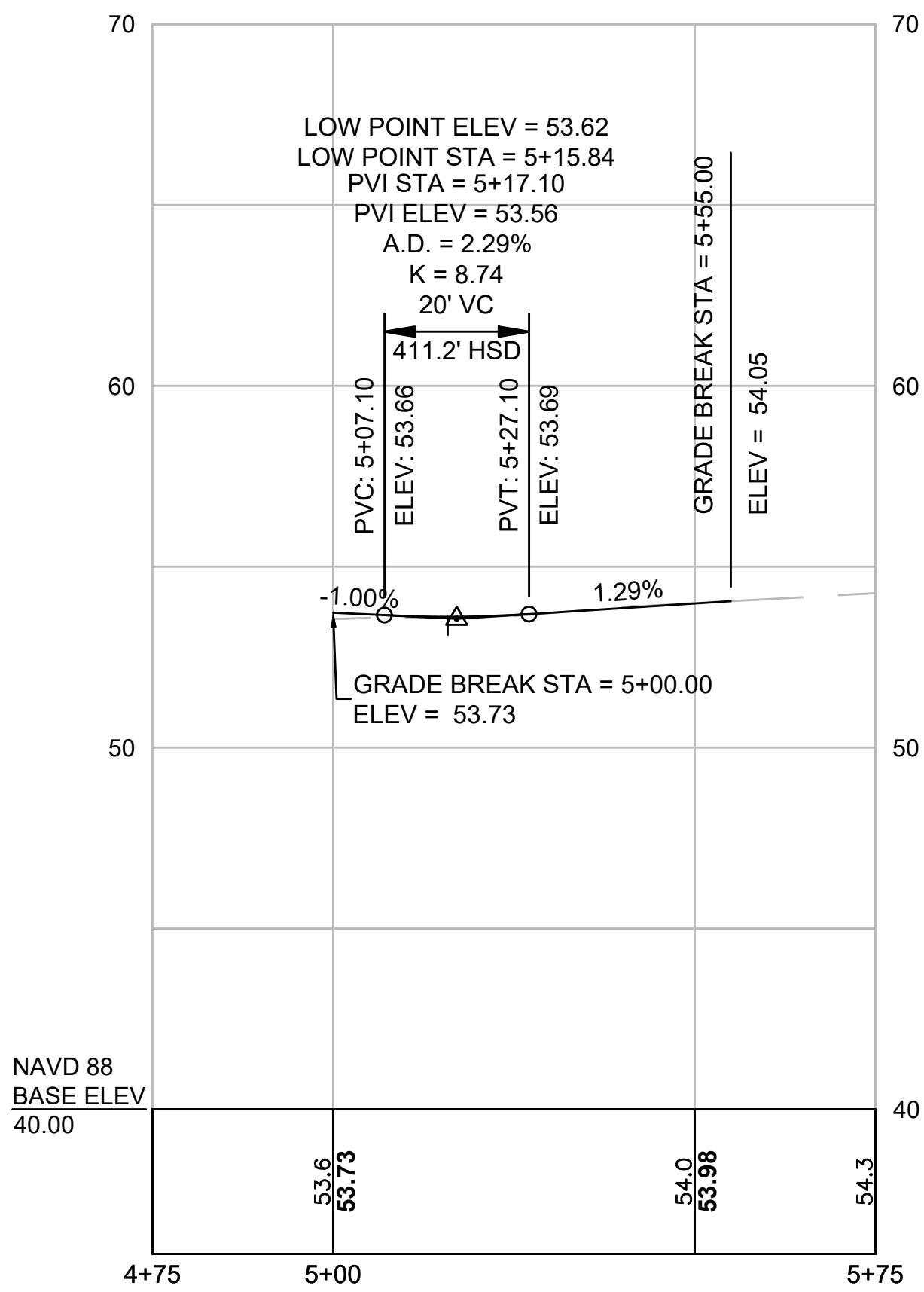
24

AS NOTED

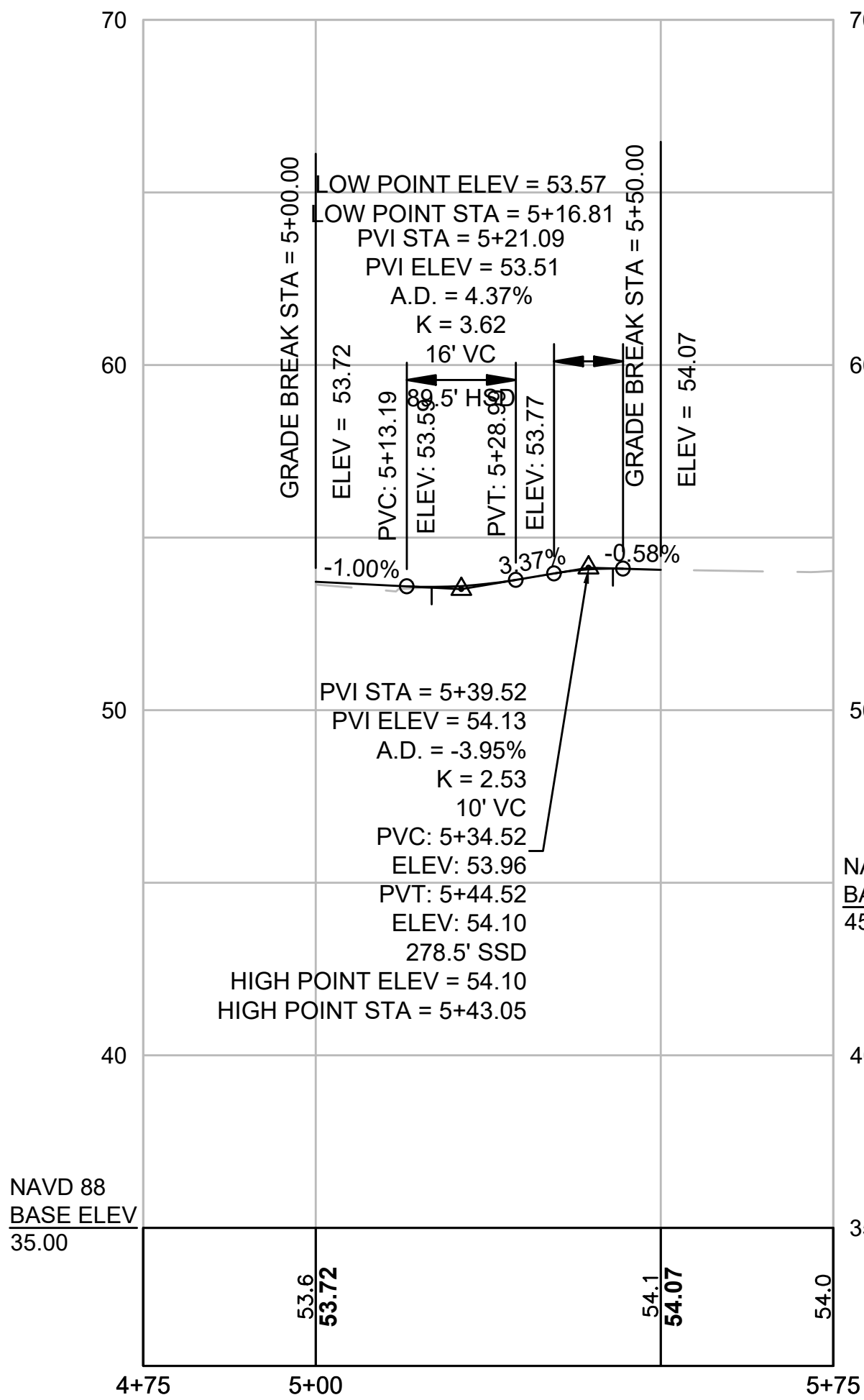


Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet11\_Profiles - Side Streets.dwg Plot Date: Aug 02, 2019 4:27pm

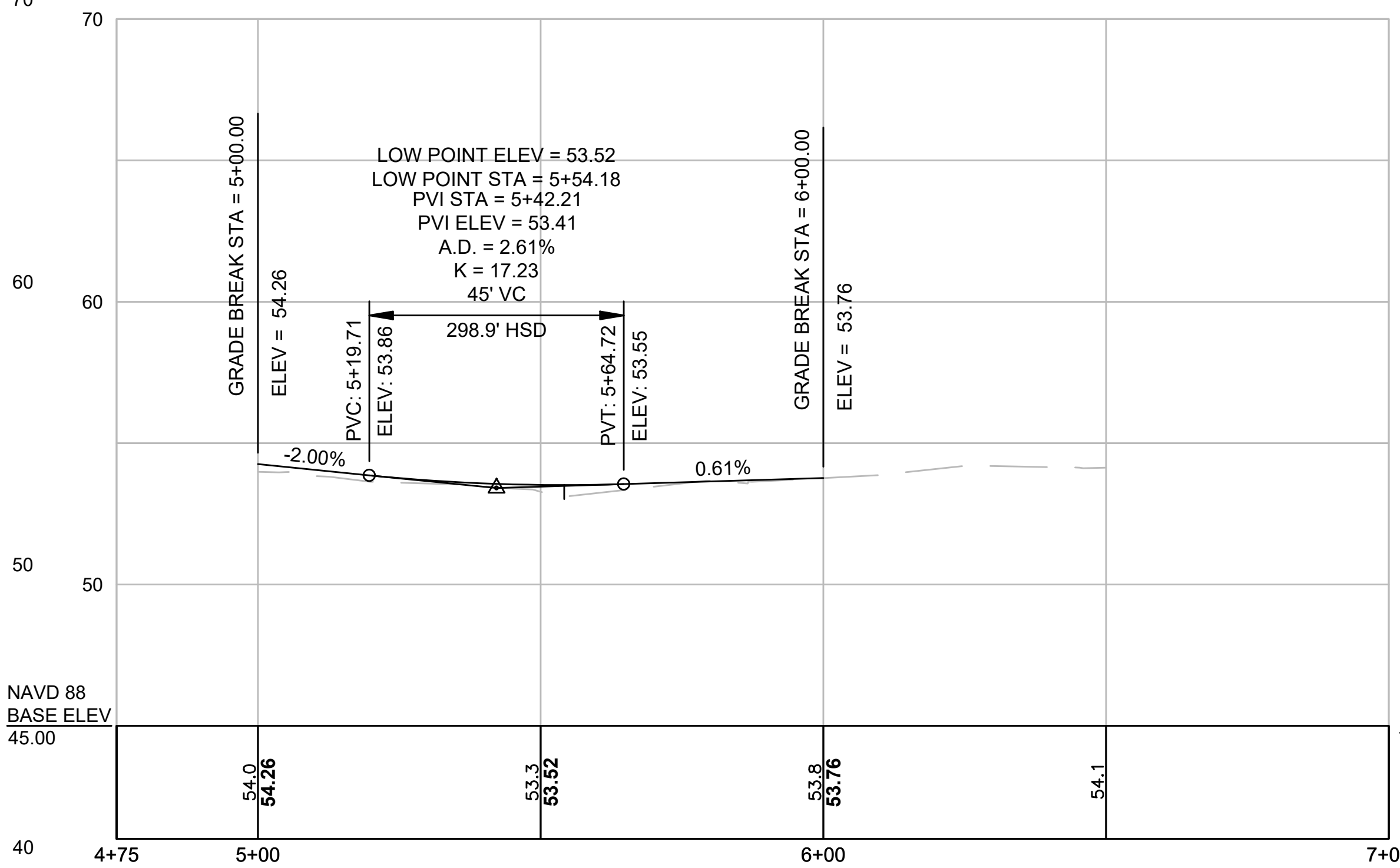
ELM ROAD



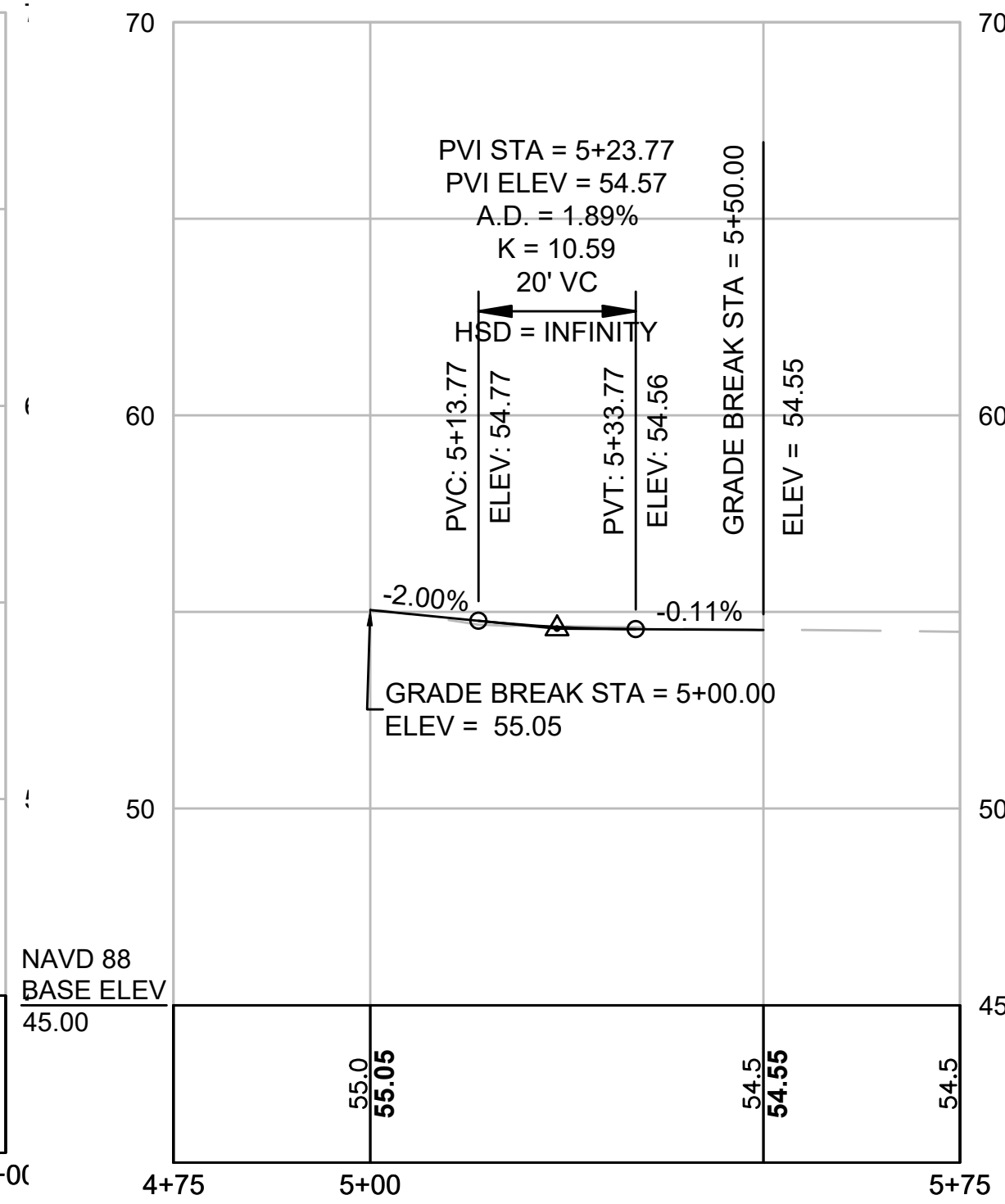
RUSSELL COURT



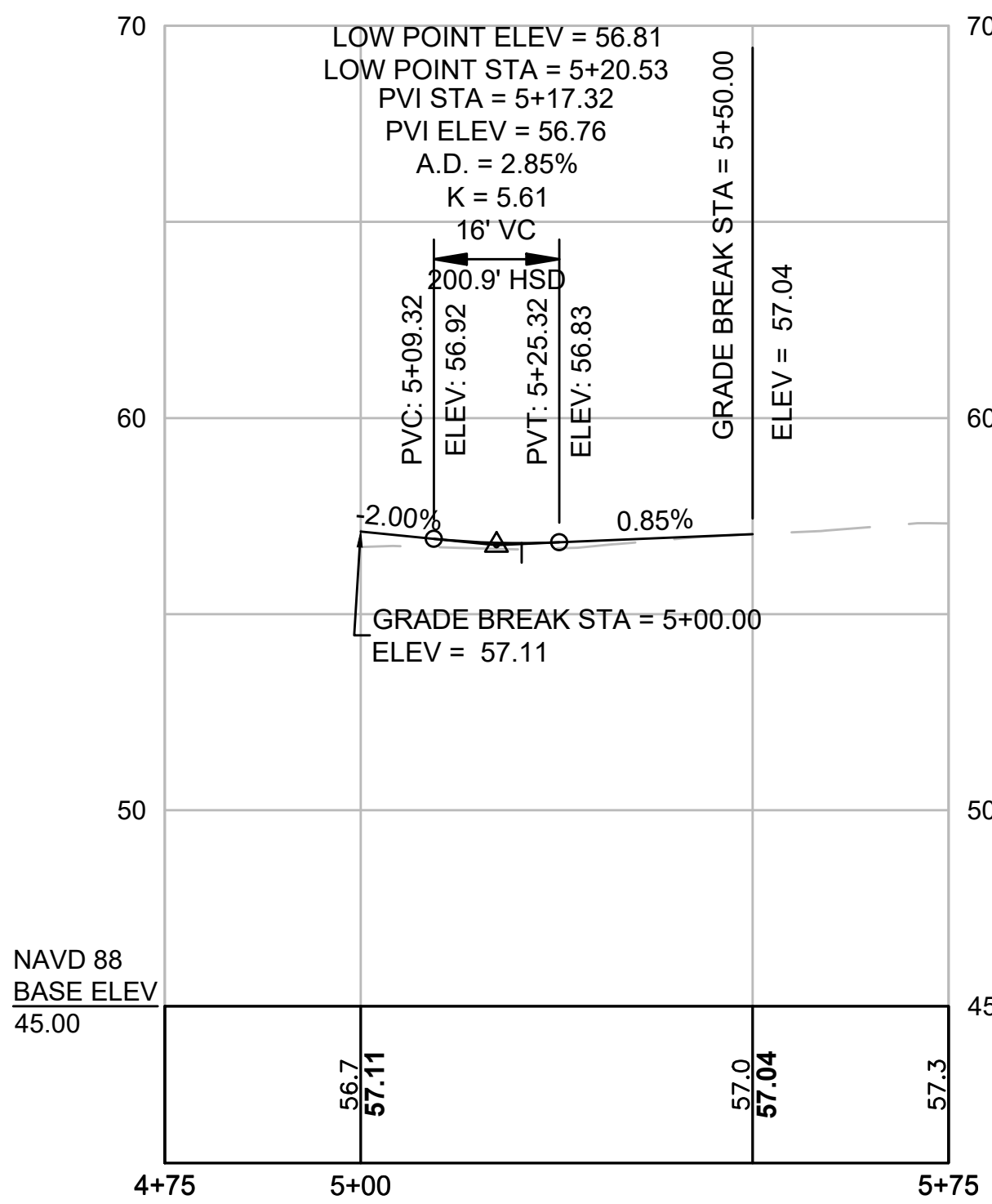
CABOT STREET



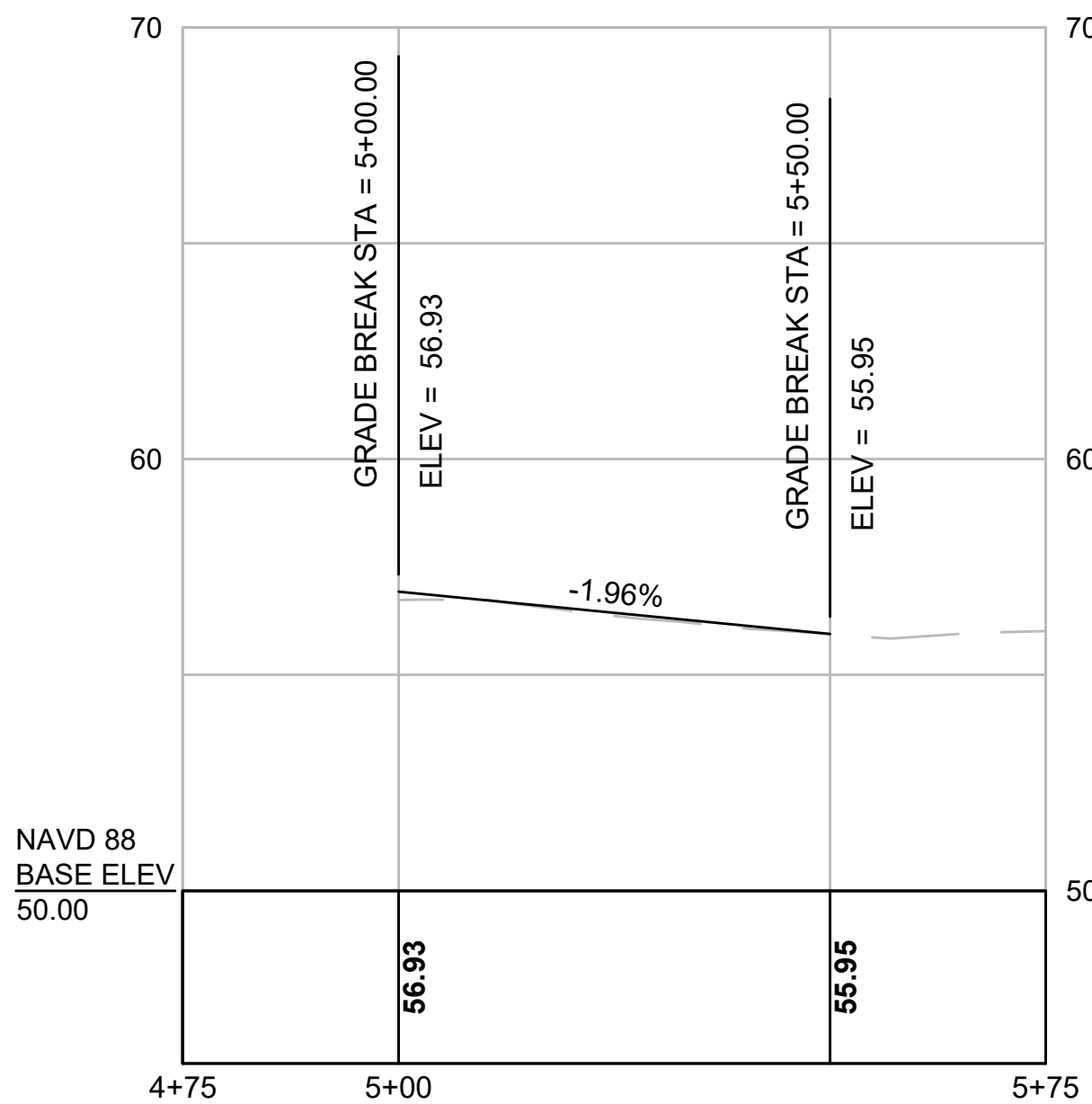
OTIS STREET



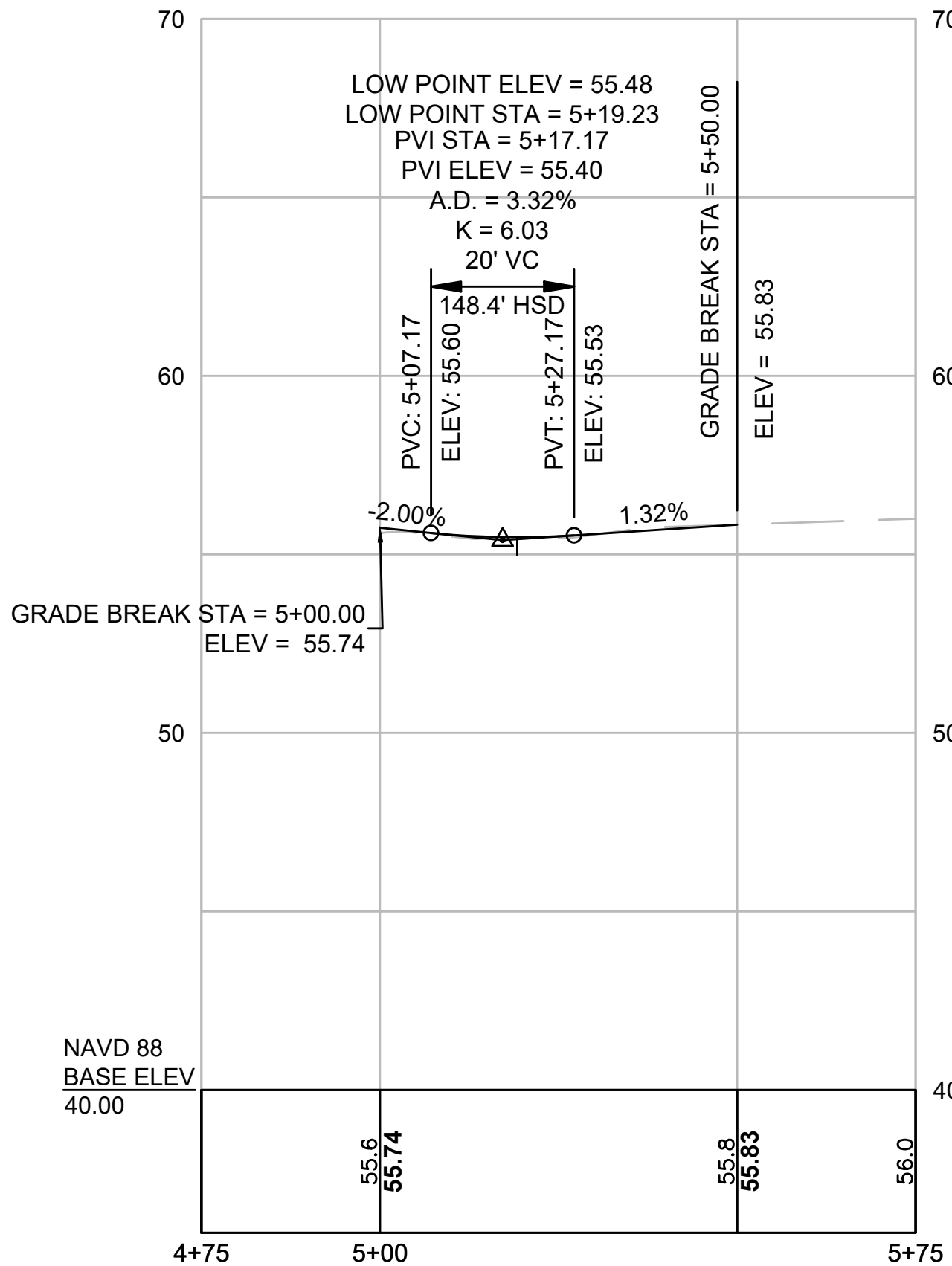
WALNUT PLACE



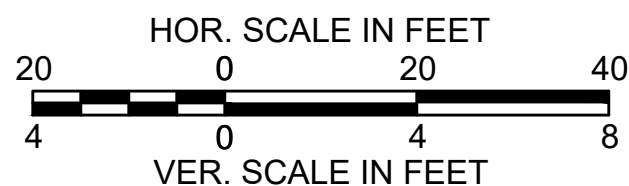
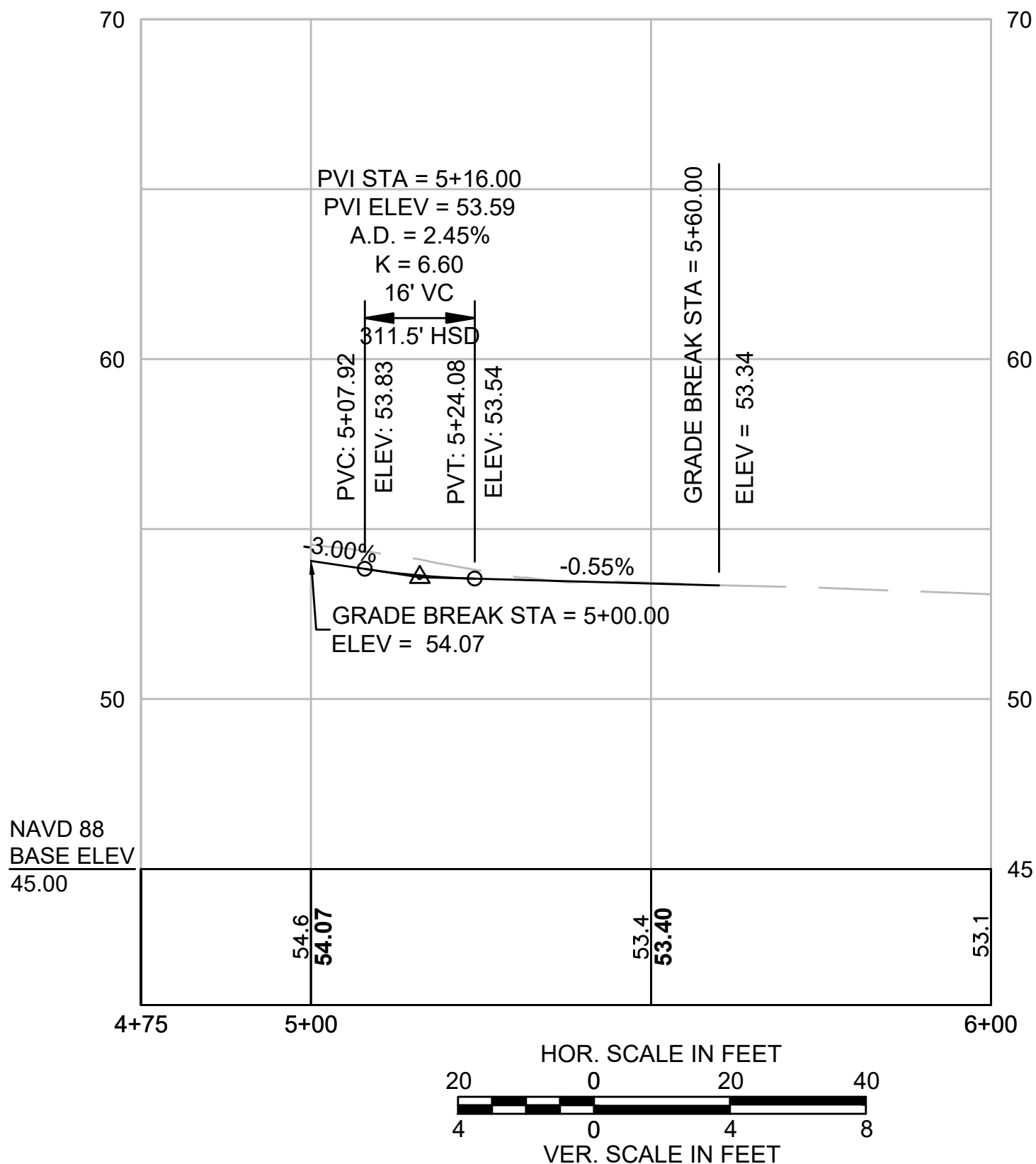
WASHINGTON PARK



CLAFLIN PLACE



MADISON AVENUE



**Environmental Partners**  
A partnership for engineering solutions.

Scale	AS NOTED
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	JRC
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

PROFILES - SIDE STREETS - 01

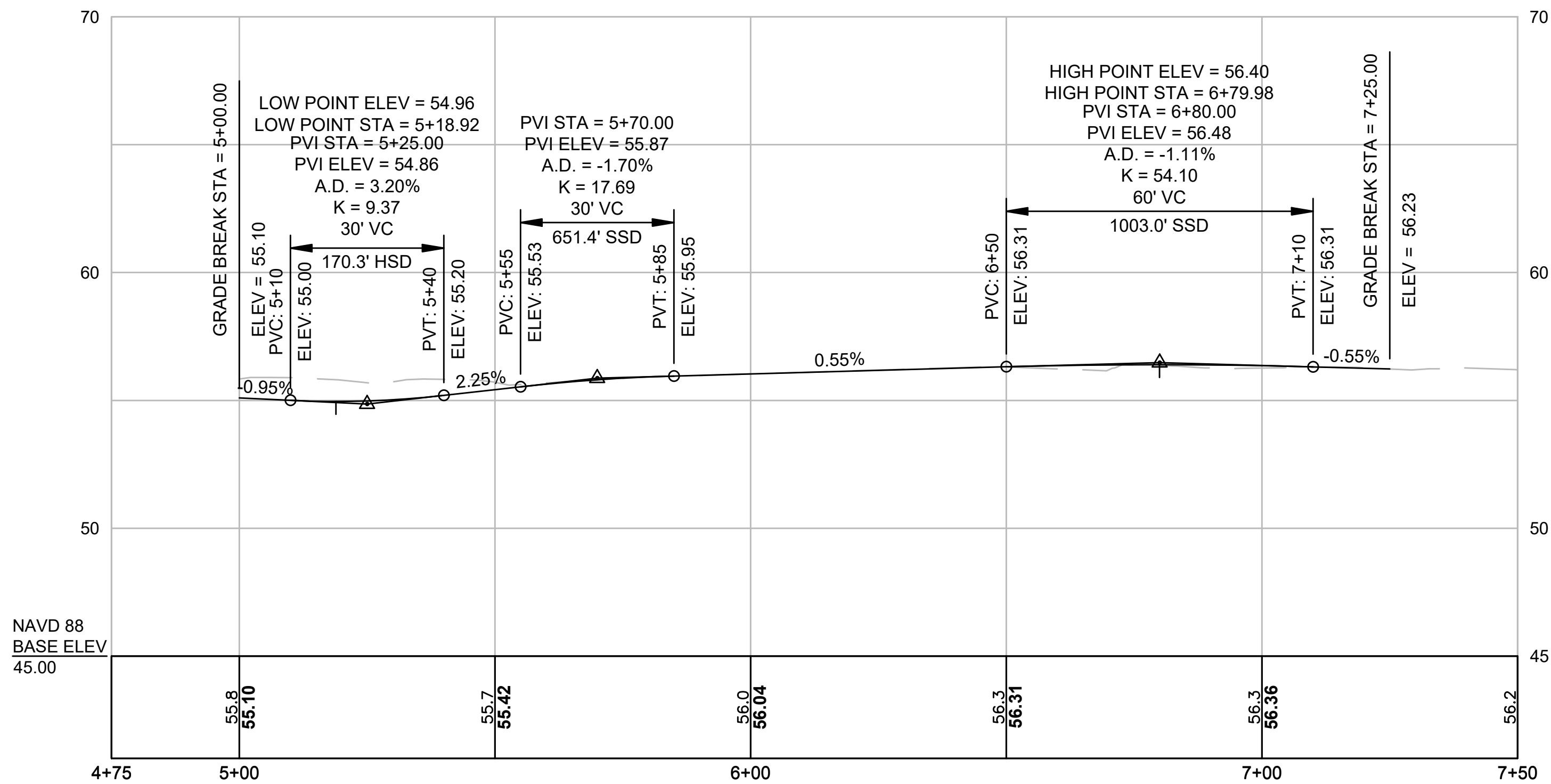
Sheet No.

25

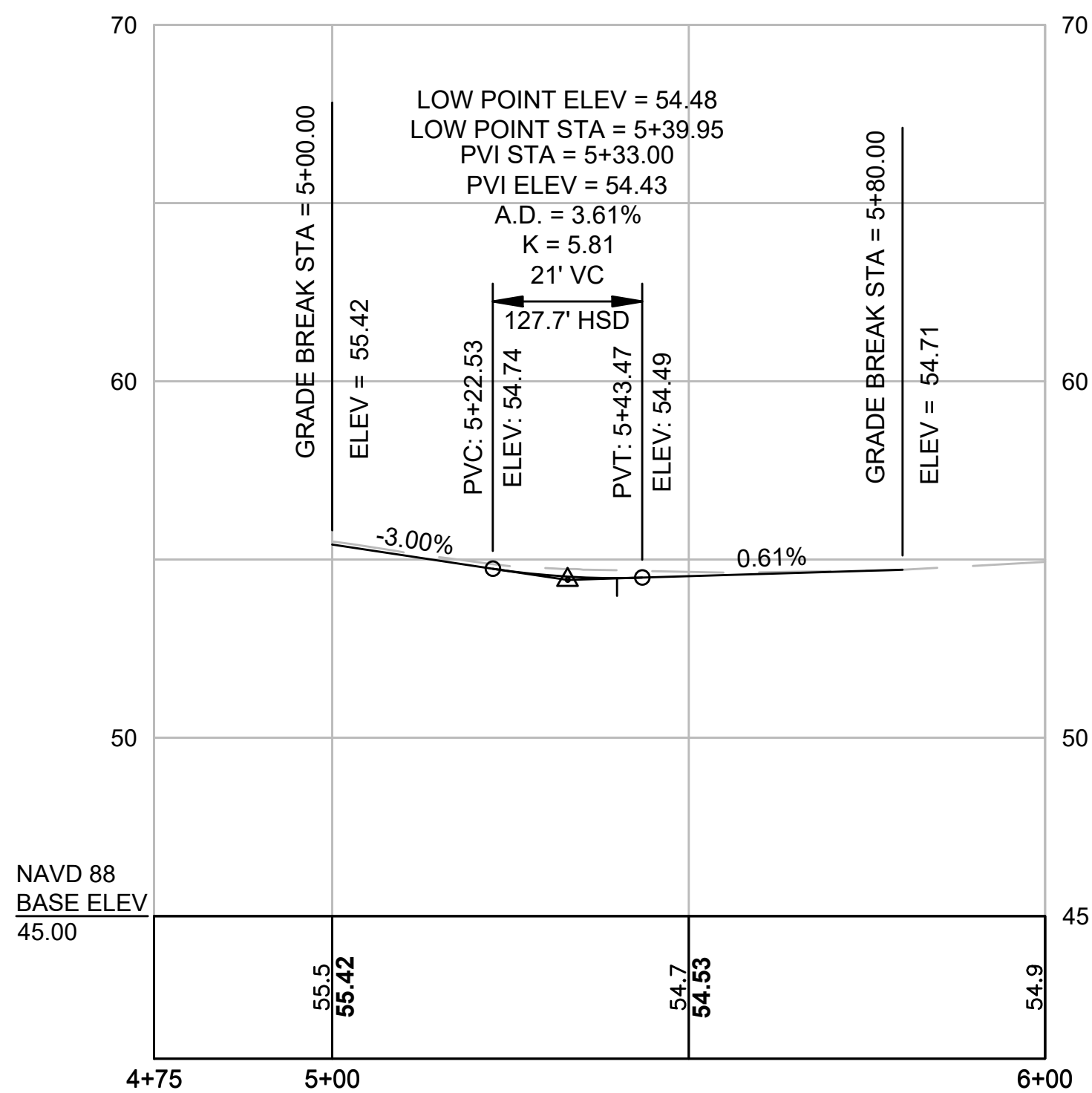
AS NOTED



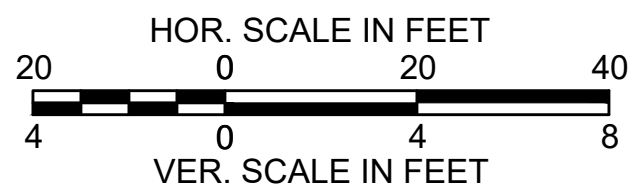
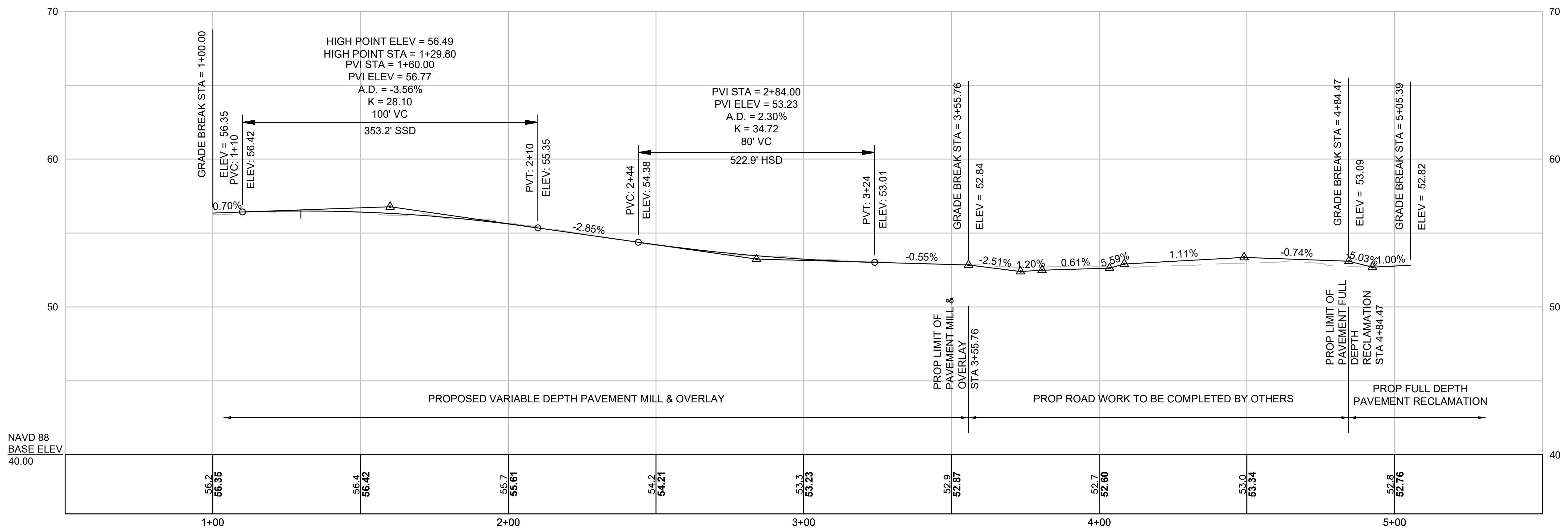
HIGHLAND AVENUE



NEWTONVILLE AVENUE



PHILIP BRAM WAY



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet11\_Profiles - Side Streets.dwg Plot Date: Aug 07 2019 7:20am



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

PROFILES - SIDE STREETS - 02

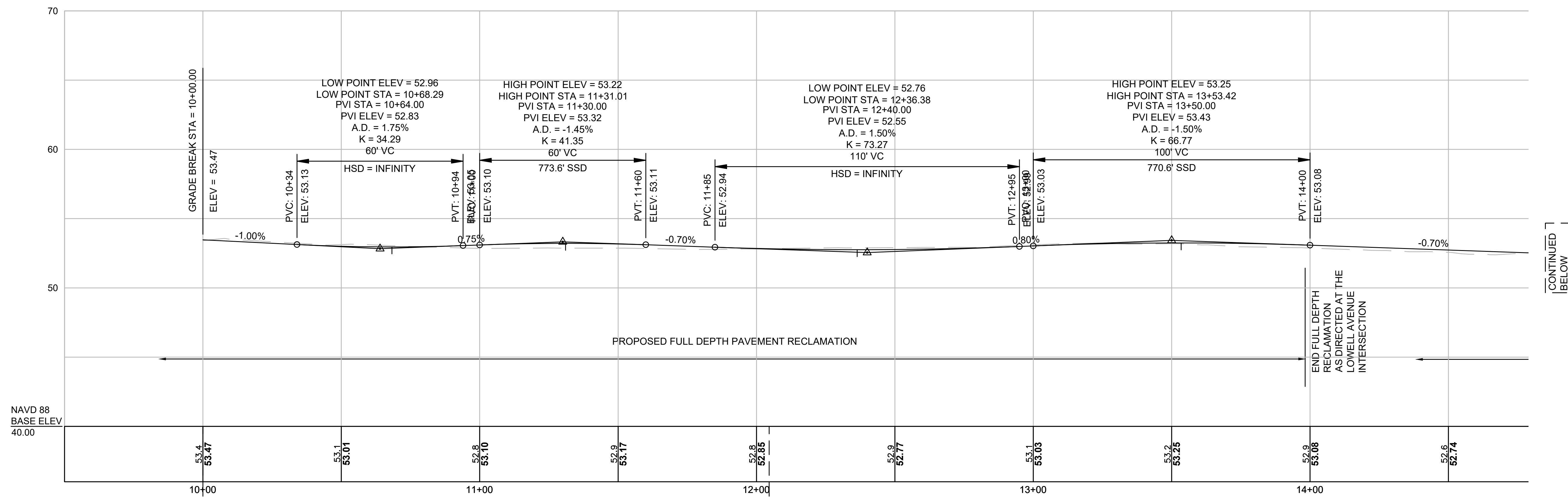
Sheet No.

26

AS NOTED

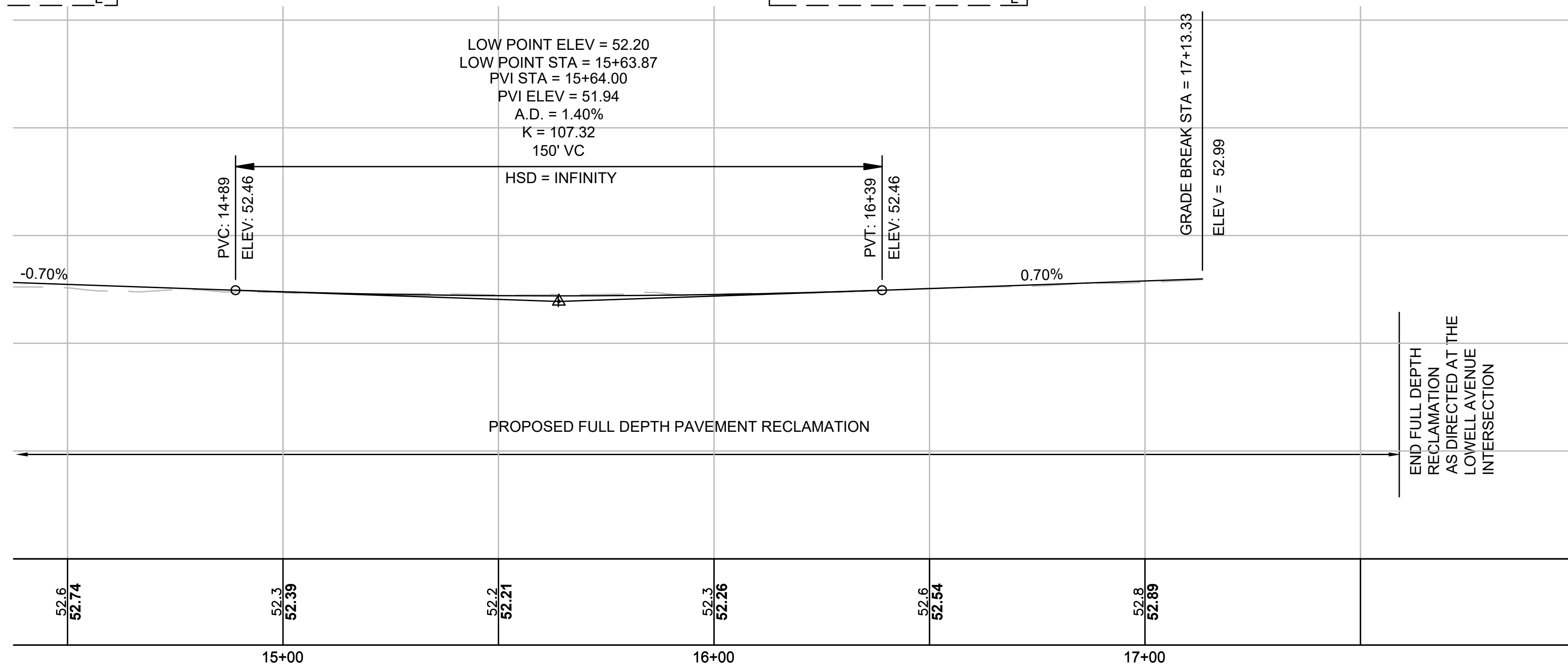


AUSTIN STREET

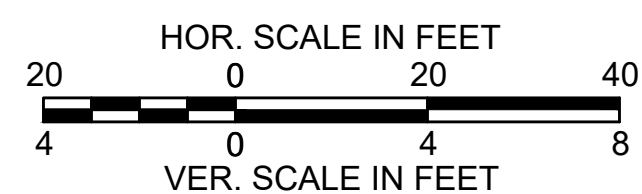


CONTINUED  
BELOW

CONTINUED  
ABOVE



END FULL DEPTH  
RECLAMATION  
AS DIRECTED AT THE  
LOWELL AVENUE  
INTERSECTION



**Environmental  Partners**  
A partnership for engineering solutions. **GROUP**

			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
MARK	DATE	DESCRIPTION	Approved by	JDF

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

# REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS

PROFILES - SIDE STREETS - 03

Sheet No.

26A

AS NOTED







Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet12\_Curb Tie Plans\_REV.dwg Plot Date: Aug 02, 2019 4:34pm



			Scale	
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	
			Drawn by	
			Checked by	
			Approved by	
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

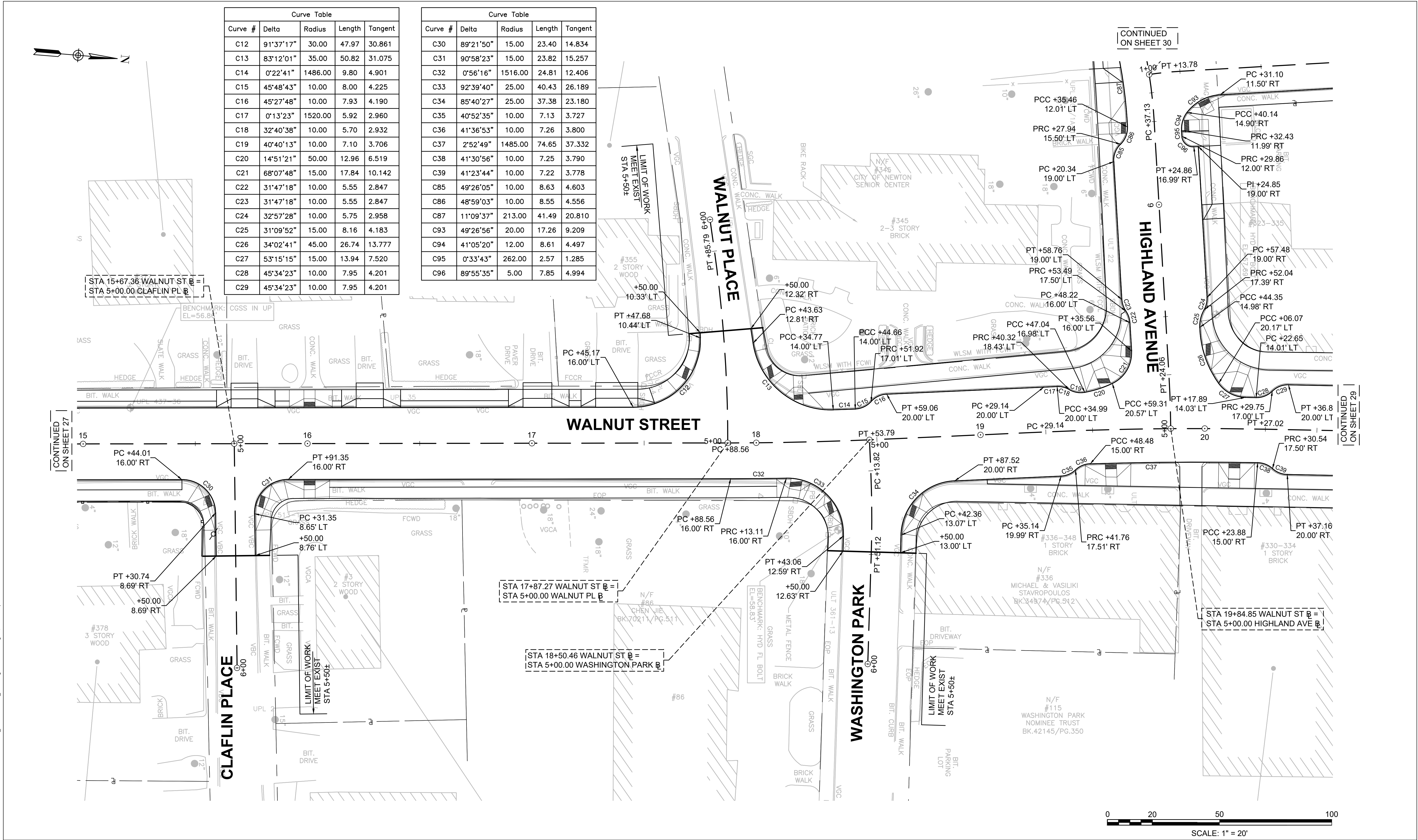
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

CURB TIE PLANS - 02

Sheet No.

28

AS NOTED





Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet12\_Curb Tie Plans\_REV.dwg Plot Date: Aug 02,2019 4:37pm



			Scale	
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	
			Drawn by	
			Checked by	
			Approved by	
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

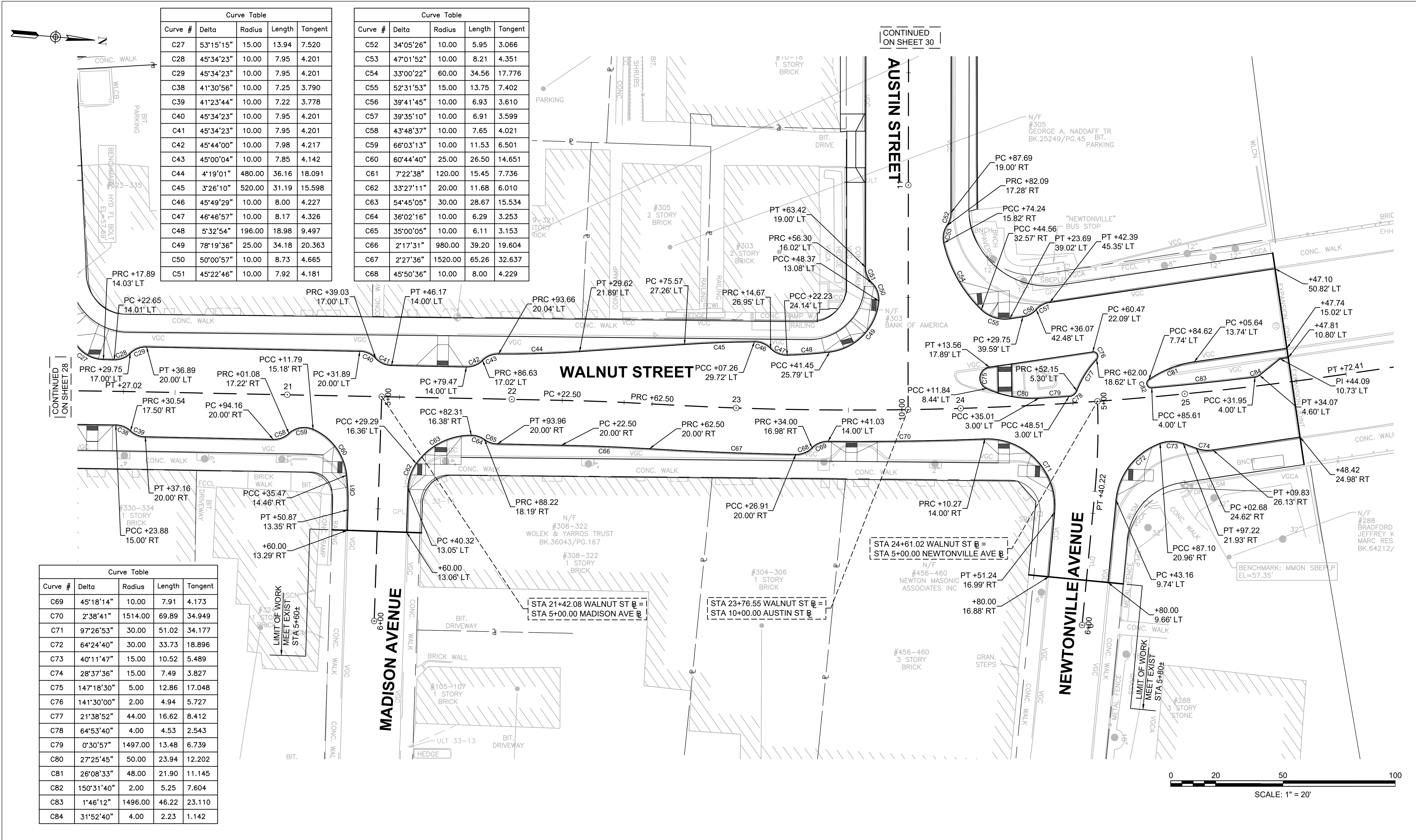
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

CURB TIE PLANS - 03

Sheet No.

29

AS NOTED



CONTINUED  
ON SHEET 30

CONTINUED  
ON SHEET 28

Curve #	Delta	Radius	Length	Tangent
C69	45°18'14"	10.00	7.91	4.173
C70	2°38'41"	1514.00	69.89	34.949
C71	97°26'53"	30.00	51.02	34.177
C72	64°24'40"	30.00	33.73	18.896
C73	40°11'47"	15.00	10.52	5.489
C74	28°37'36"	15.00	7.49	3.827
C75	147°18'30"	5.00	12.86	17.048
C76	141°30'00"	2.00	4.94	5.727
C77	21°38'52"	44.00	16.62	8.412
C78	64°53'40"	4.00	4.53	2.543
C79	0°30'57"	1497.00	13.48	6.739
C80	27°25'45"	50.00	23.94	12.202
C81	26°08'33"	48.00	21.90	11.145
C82	150°31'40"	2.00	5.25	7.604
C83	1°46'12"	1496.00	46.22	23.110
C84	31°52'40"	4.00	2.23	1.142

Curve #	Delta	Radius	Length	Tangent
C27	53°15'15"	15.00	13.94	7.520
C28	45°34'23"	10.00	7.95	4.201
C29	45°34'23"	10.00	7.95	4.201
C38	41°30'56"	10.00	7.25	3.790
C39	41°23'44"	10.00	7.22	3.778
C40	45°34'23"	10.00	7.95	4.201
C41	45°34'23"	10.00	7.95	4.201
C42	45°44'00"	10.00	7.98	4.217
C43	45°00'04"	10.00	7.85	4.142
C44	4°19'01"	480.00	36.16	18.091
C45	3°26'10"	520.00	31.19	15.598
C46	45°49'29"	10.00	8.00	4.227
C47	46°46'57"	10.00	8.17	4.326
C48	5°32'54"	196.00	18.98	9.497
C49	78°19'36"	25.00	34.18	20.363
C50	50°00'57"	10.00	8.73	4.665
C51	45°22'46"	10.00	7.92	4.181

Curve #	Delta	Radius	Length	Tangent
C52	34°05'26"	10.00	5.95	3.066
C53	47°01'52"	10.00	8.21	4.351
C54	33°00'22"	60.00	34.56	17.776
C55	52°31'53"	15.00	13.75	7.402
C56	39°41'45"	10.00	6.93	3.610
C57	39°35'10"	10.00	6.91	3.599
C58	43°48'37"	10.00	7.65	4.021
C59	66°03'13"	10.00	11.53	6.501
C60	60°44'40"	25.00	26.50	14.651
C61	7°22'38"	120.00	15.45	7.736
C62	33°27'11"	20.00	11.68	6.010
C63	54°45'05"	30.00	28.67	15.534
C64	36°02'16"	10.00	6.29	3.253
C65	35°00'05"	10.00	6.11	3.153
C66	2°17'31"	980.00	39.20	19.604
C67	2°27'36"	1520.00	65.26	32.637
C68	45°50'36"	10.00	8.00	4.229







Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet12\_Grading Plans-rev.dwg Plot Date: Aug 02 2019 4:46pm



				Scale	AS NOTED
				Date	AUGUST 2019
				Job No.	R326-1605.00
				Designed by	JRC
				Drawn by	KMB
				Checked by	BLH
				Approved by	JDF
MARK	DATE	DESCRIPTION			

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

GRADING PLANS - 01

Sheet No.

31

AS NOTED

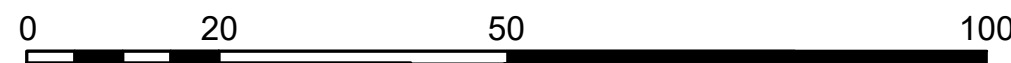
NOTES:

1. PROPOSED VERTICAL GRANITE CURB REVEAL VARIES TO MEET EXISTING BACK OF SIDEWALK GRADES TO THE EXTENT PRACTICABLE. FINAL CURB REVEALS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
2. ALL GRADES SHOWN ARE BASED ON TOPOGRAPHIC SURVEY INFORMATION. ACTUAL FIELD CONDITIONS MAY VARY. GRADES PROVIDED ARE FOR BIDDING PURPOSES ONLY AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. ANY INCONSISTENCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER FOR REMEDY PRIOR TO ADVANCING ANY WORK.
3. THE CONTRACTOR SHALL VERIFY THAT ALL GRADES ARE ADA/AAB COMPLIANT PRIOR TO INSTALLATION OF ANY CONCRETE STRUCTURES. FAILURE TO DO SO SHALL RESULT IN THE REPLACEMENT OF NON COMPLIANT CONCRETE STRUCTURES AT NO ADDITIONAL COST TO THE CITY OF NEWTON.
4. TOP OF CURB ELEVATION AT LIMITS OF WORK SHALL MEET ADJOINING EXISTING TOP OF CURB ELEVATIONS.

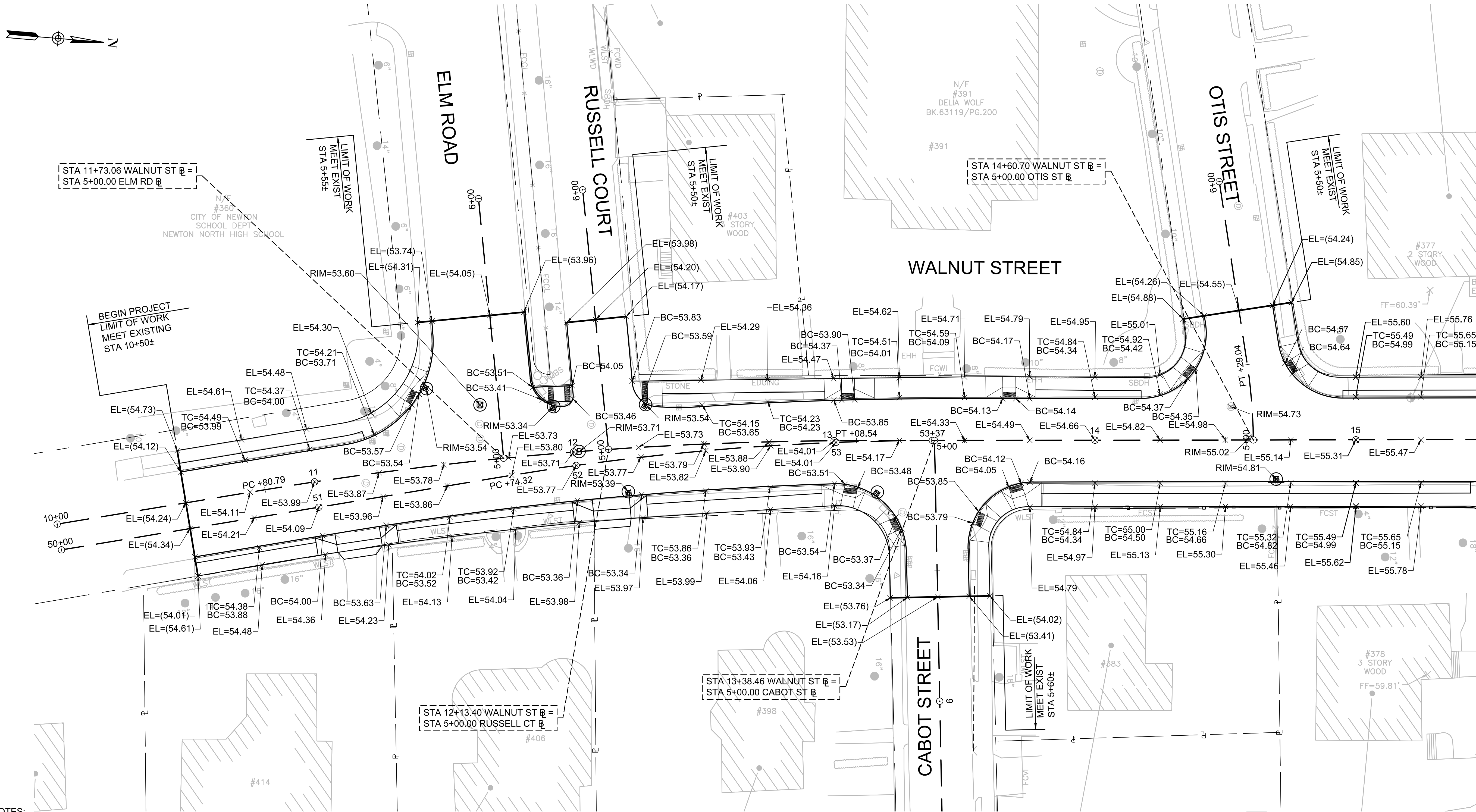
LEGEND

EL=55.20  
BC=55.20  
TC=55.20  
EL=(55.20)

PROPOSED ELEVATION  
PROPOSED BOTTOM CURB ELEVATION  
PROPOSED TOP CURB ELEVATION  
EXISTING ELEVATION



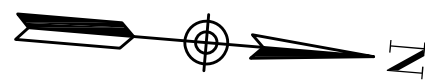
SCALE: 1" = 20'



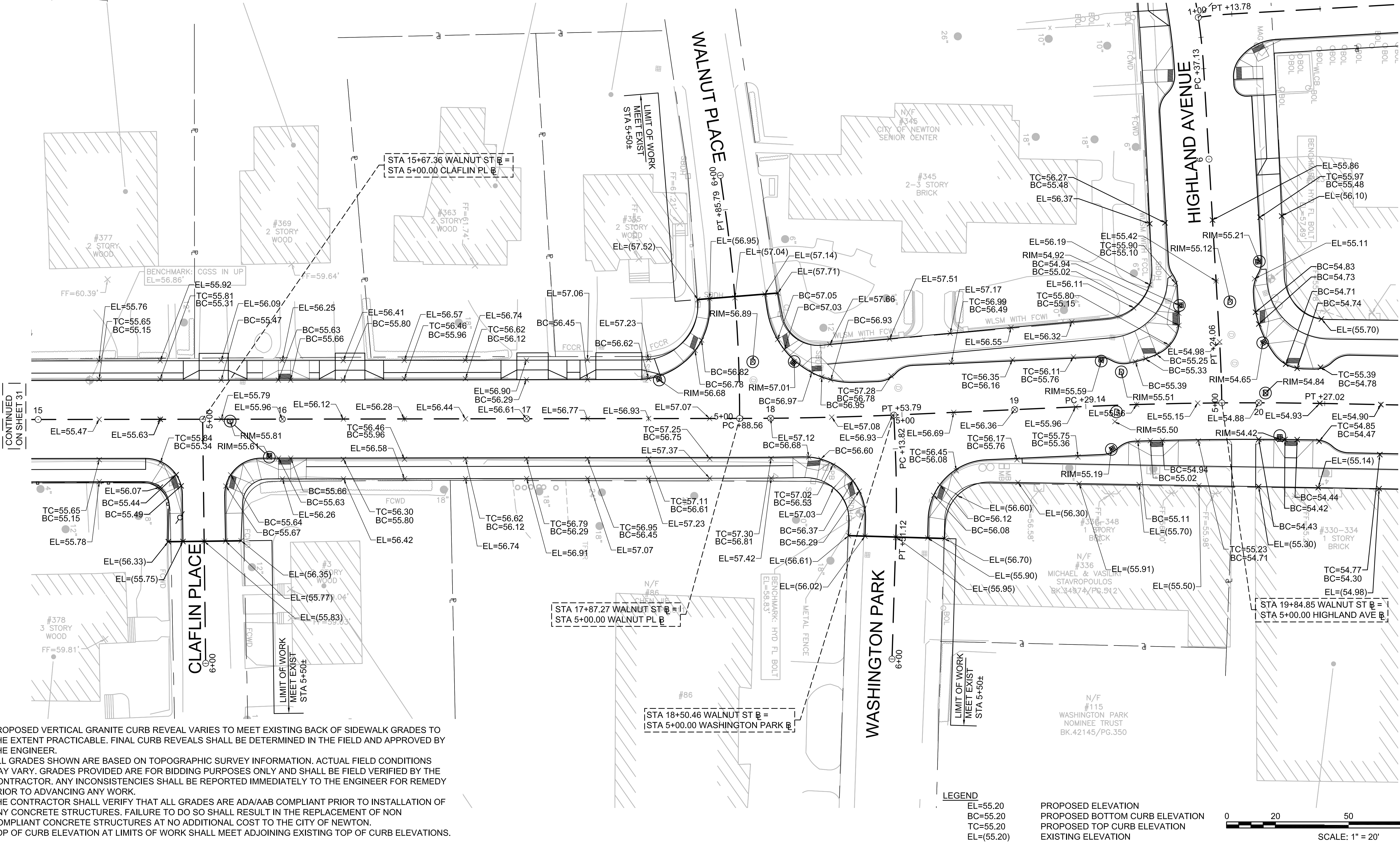
CONTINUED  
ON SHEET 32



Drawing file: C:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet112\_Grading Plans-rev.dwg Plot Date: Aug 06, 2019 8:42pm



CONTINUED  
ON SHEET 34



NOTES:

1. PROPOSED VERTICAL GRANITE CURB REVEAL VARIES TO MEET EXISTING BACK OF SIDEWALK GRADES TO THE EXTENT PRACTICABLE. FINAL CURB REVEALS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
2. ALL GRADES SHOWN ARE BASED ON TOPOGRAPHIC SURVEY INFORMATION. ACTUAL FIELD CONDITIONS MAY VARY. GRADES PROVIDED ARE FOR BIDDING PURPOSES ONLY AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. ANY INCONSISTENCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER FOR REMEDY PRIOR TO ADVANCING ANY WORK.
3. THE CONTRACTOR SHALL VERIFY THAT ALL GRADES ARE ADA/AAB COMPLIANT PRIOR TO INSTALLATION OF ANY CONCRETE STRUCTURES. FAILURE TO DO SO SHALL RESULT IN THE REPLACEMENT OF NON COMPLIANT CONCRETE STRUCTURES AT NO ADDITIONAL COST TO THE CITY OF NEWTON.
4. TOP OF CURB ELEVATION AT LIMITS OF WORK SHALL MEET ADJOINING EXISTING TOP OF CURB ELEVATIONS.

LEGEND

EL=55.20  
BC=55.20  
TC=55.20  
EL=(55.20)

PROPOSED ELEVATION  
PROPOSED BOTTOM CURB ELEVATION  
PROPOSED TOP CURB ELEVATION  
EXISTING ELEVATION

0 20 50 100  
SCALE: 1" = 20'



**Environmental Partners**  
A partnership for engineering solutions. GROUP

Scale	AS NOTED
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	KMB
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

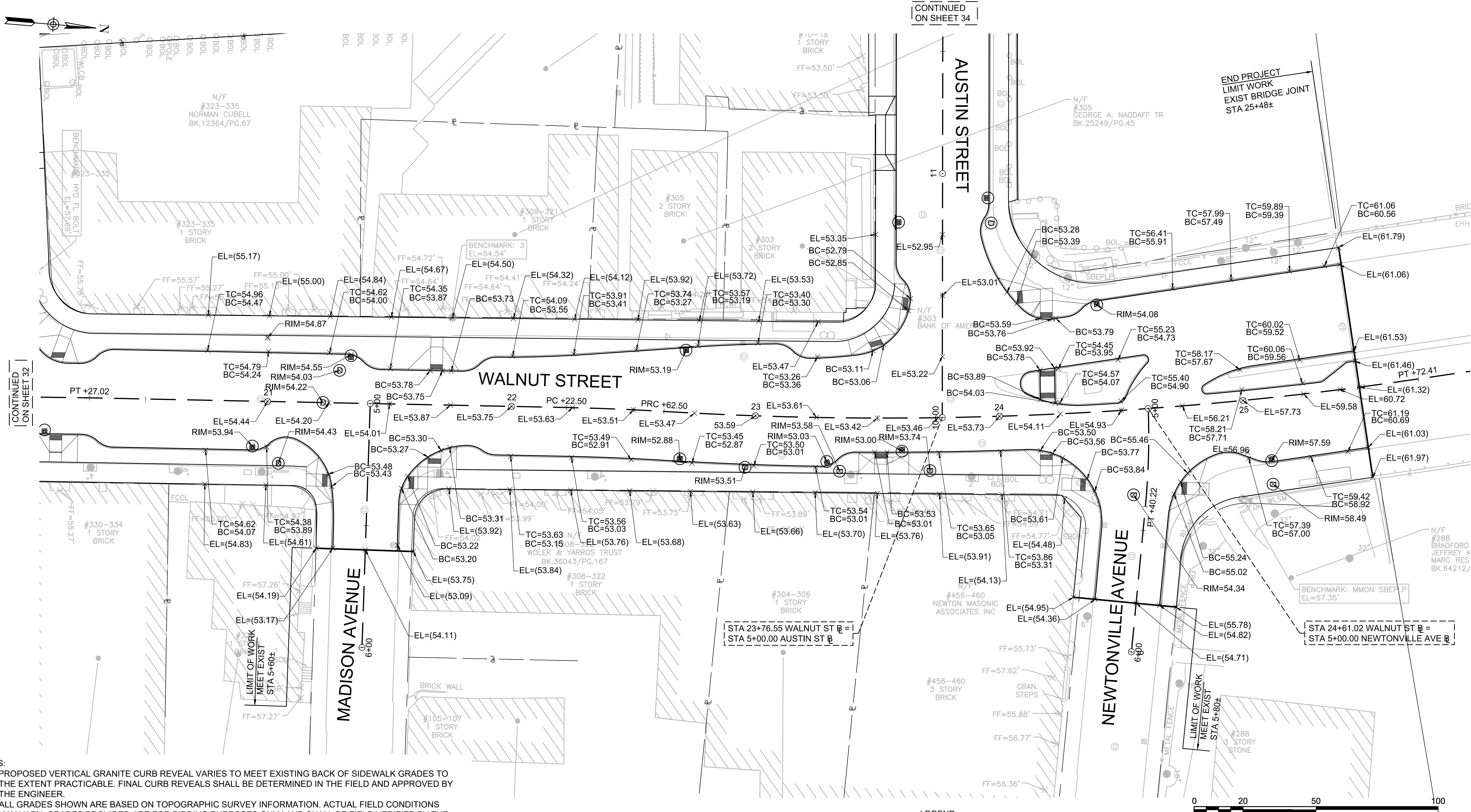
GRADING PLANS - 02

Sheet No.

32

AS NOTED





NOTES:

1. PROPOSED VERTICAL GRANITE CURB REVEAL VARIES TO MEET EXISTING BACK OF SIDEWALK GRADES TO THE EXTENT PRACTICABLE. FINAL CURB REVEALS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
2. ALL GRADES SHOWN ARE BASED ON TOPOGRAPHIC SURVEY INFORMATION. ACTUAL FIELD CONDITIONS MAY VARY. GRADES PROVIDED ARE FOR BIDDING PURPOSES ONLY AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. ANY INCONSISTENCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER FOR REMEDY PRIOR TO ADVANCING ANY WORK.
3. THE CONTRACTOR SHALL VERIFY THAT ALL GRADES ARE ADA/AAB COMPLIANT PRIOR TO INSTALLATION OF ANY CONCRETE STRUCTURES. FAILURE TO DO SO SHALL RESULT IN THE REPLACEMENT OF NON COMPLIANT CONCRETE STRUCTURES AT NO ADDITIONAL COST TO THE CITY OF NEWTON.
4. TOP OF CURB ELEVATION AT LIMITS OF WORK SHALL MEET ADJOINING EXISTING TOP OF CURB ELEVATIONS.

LEGEND

- |            |                                |
|------------|--------------------------------|
| EL=55.20   | PROPOSED ELEVATION             |
| BC=55.20   | PROPOSED BOTTOM CURB ELEVATION |
| TC=55.20   | PROPOSED TOP CURB ELEVATION    |
| EL=(55.20) | EXISTING ELEVATION             |



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	KMB
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

GRADING PLANS - 03

Sheet No.

33

AS NOTED



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet12\_Grading Plans-rev.dwg Plot Date: Aug 06 2019 3:53pm



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	KMB
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

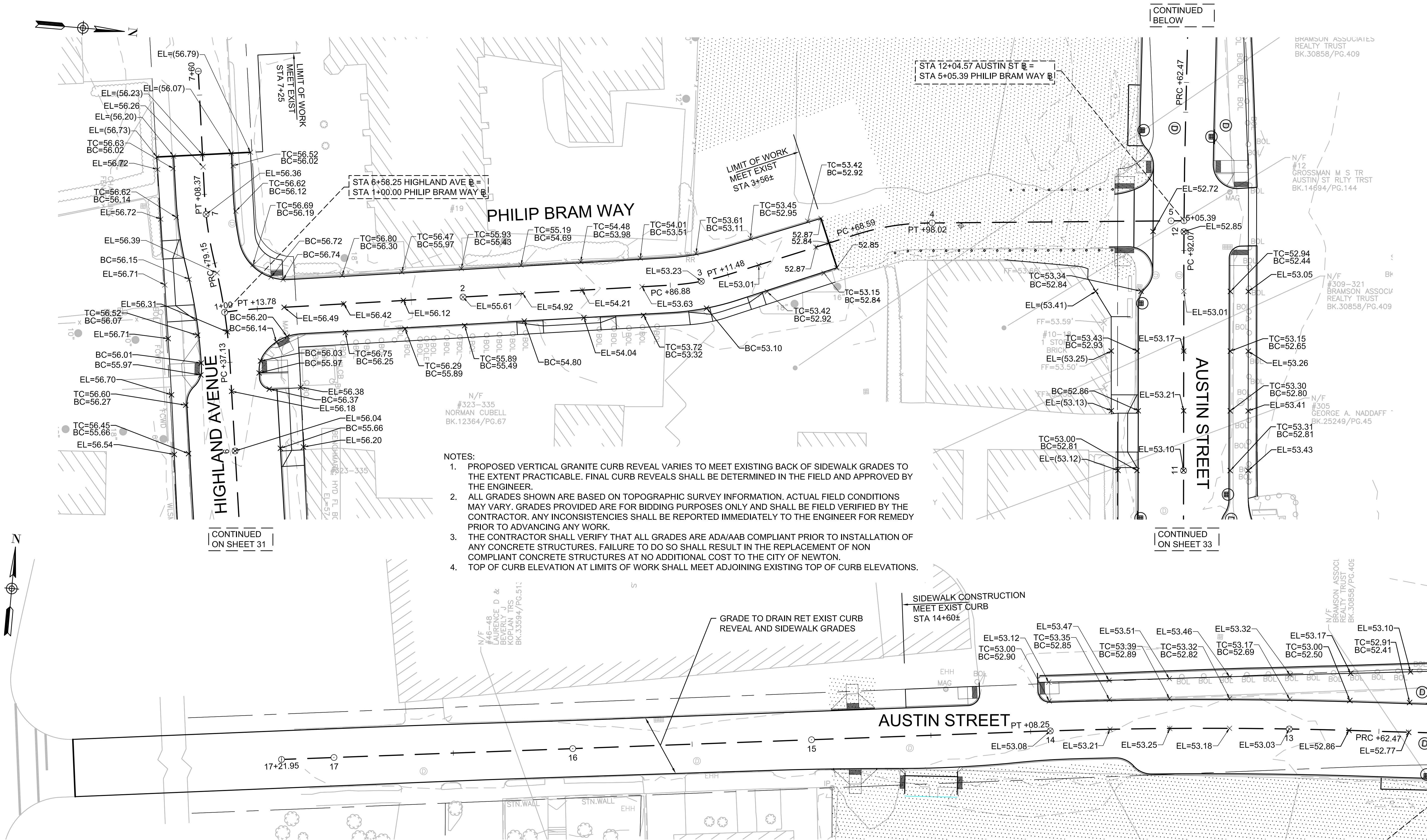
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

GRADING PLANS - 04

Sheet No.

34

AS NOTED

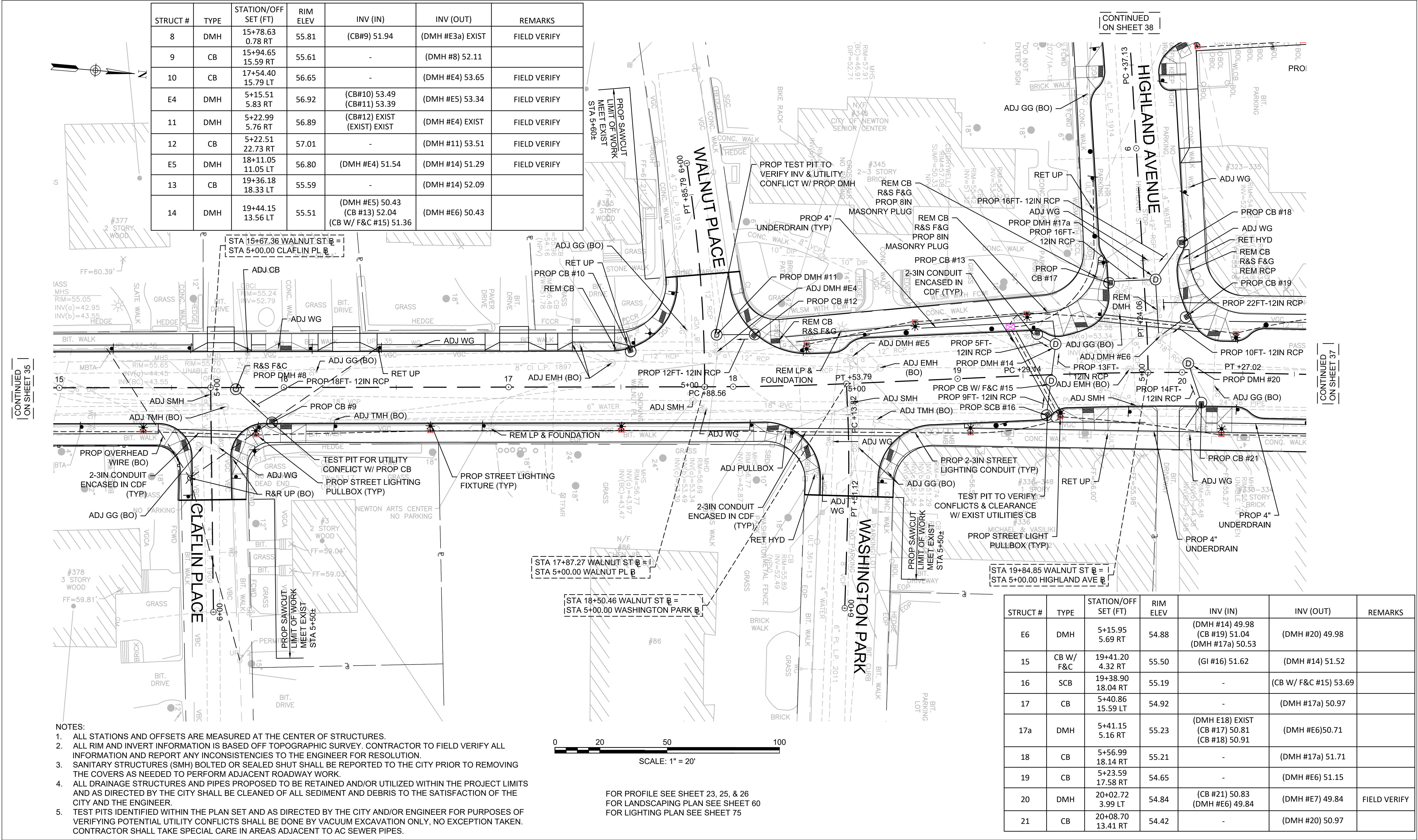








Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet13\_Utility Plans.dwg Plot Date: Aug 02,2019 5:10pm









- NOTES:
1. ALL STATIONS AND OFFSETS ARE MEASURED AT THE CENTER OF STRUCTURES.
  2. ALL RIM AND INVERT INFORMATION IS BASED OFF TOPOGRAPHIC SURVEY. CONTRACTOR TO FIELD VERIFY ALL INFORMATION AND REPORT ANY INCONSISTENCIES TO THE ENGINEER FOR RESOLUTION.
  3. SANITARY STRUCTURES (SMH) BOLTED OR SEALED SHUT SHALL BE REPORTED TO THE CITY PRIOR TO REMOVING THE COVERS AS NEEDED TO PERFORM ADJACENT ROADWAY WORK.
  4. ALL DRAINAGE STRUCTURES AND PIPES PROPOSED TO BE RETAINED AND/OR UTILIZED WITHIN THE PROJECT LIMITS AND AS DIRECTED BY THE CITY SHALL BE CLEANED OF ALL SEDIMENT AND DEBRIS TO THE SATISFACTION OF THE CITY AND THE ENGINEER.
  5. TEST PITS IDENTIFIED WITHIN THE PLAN SET AND AS DIRECTED BY THE CITY AND/OR ENGINEER FOR PURPOSES OF VERIFYING POTENTIAL UTILITY CONFLICTS SHALL BE DONE BY VACUUM EXCAVATION ONLY, NO EXCEPTION TAKEN. CONTRACTOR SHALL TAKE SPECIAL CARE IN AREAS ADJACENT TO AC SEWER PIPES.

STRUCT #	TYPE	STATION/OFF SET (FT)	RIM ELEV	INV (IN)	INV (OUT)	REMARKS
39	CB	11+70.00 17.39 LT	52.61	-	(DMH #E15) 49.50	
E15	DMH	11+81.71 11.78 LT	52.64	(DMH #39) 49.39 (EXIST) 49.29	(DMH #E14) 49.29	
40	GI	12+39.98 11.00 RT	52.49	-	(CB W/ F&C #41) 50.99	
41	CB W/ F&C	12+44.84 16.97 RT	53.04	(GI #40)	(DMH #43) 50.22	
42	CB	12+42.10 17.41 LT	52.47	-	(DMH #43) 50.24	
43	DMH	12+43.22 4.47 LT	52.85	(CB W/ F&C #41) 50.25 (CB #42) 50.05	(EXIST) 49.95	

Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\CAD\Sheet\13\_Utility Plans.dwg Plot Date: Aug 07 2019 7:09am



**Environmental Partners**  
A partnership for engineering solutions.

MARK DATE DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	JRC
Drawn by	KMB
Checked by	BLH
Approved by	JDF

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

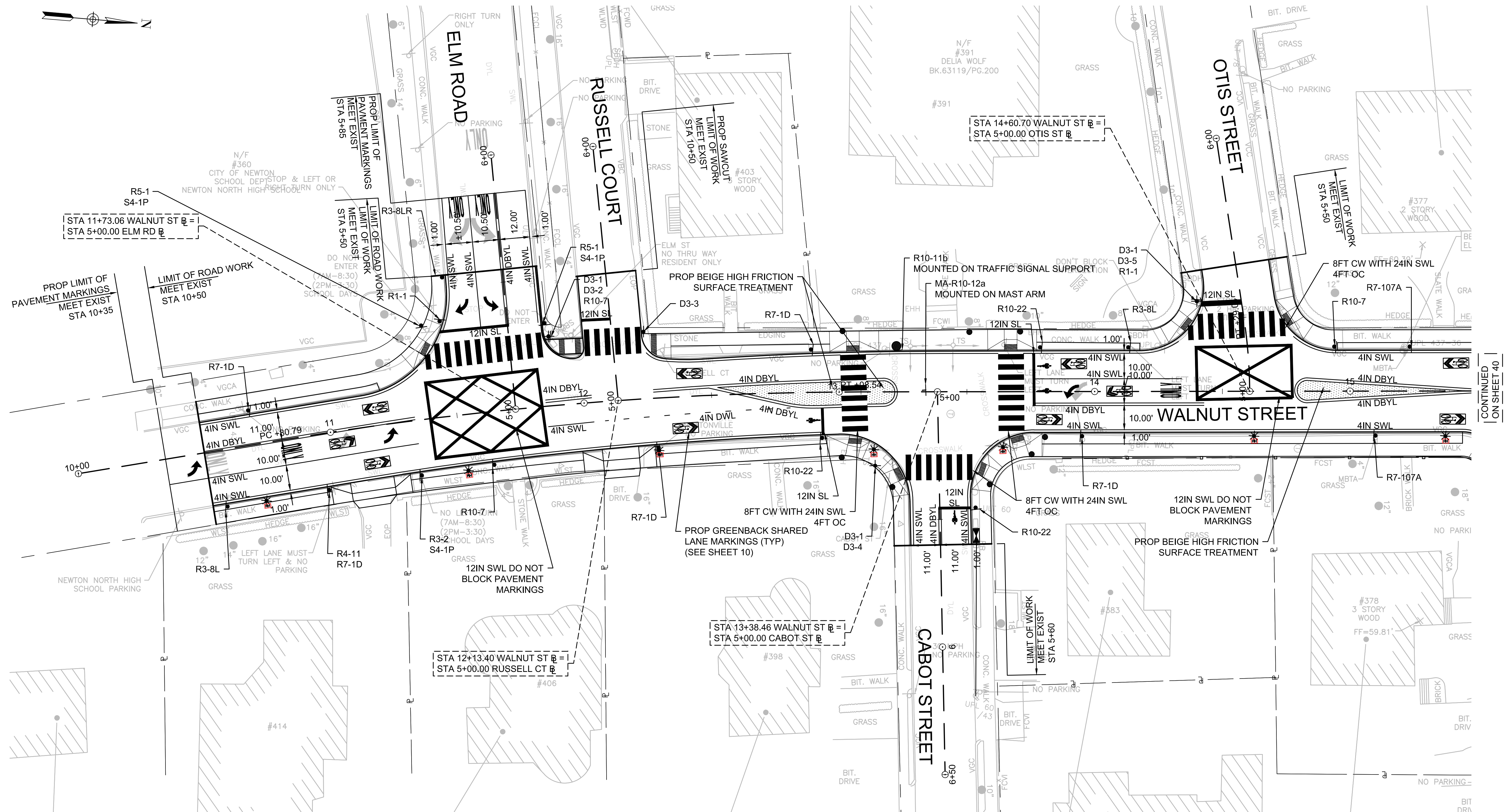
UTILITY PLAN- 04

Sheet No.

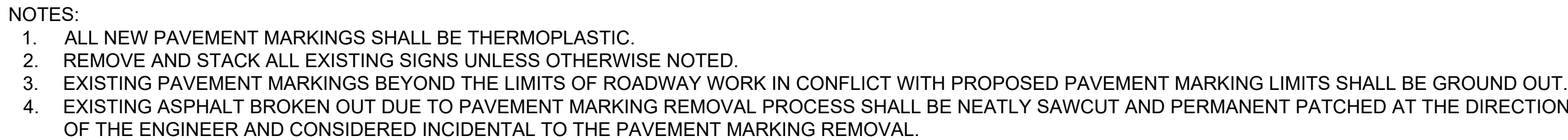
38

AS NOTED









			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	AMF
			Checked by	BLH
MARK	DATE	DESCRIPTION	Approved by	JDF

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

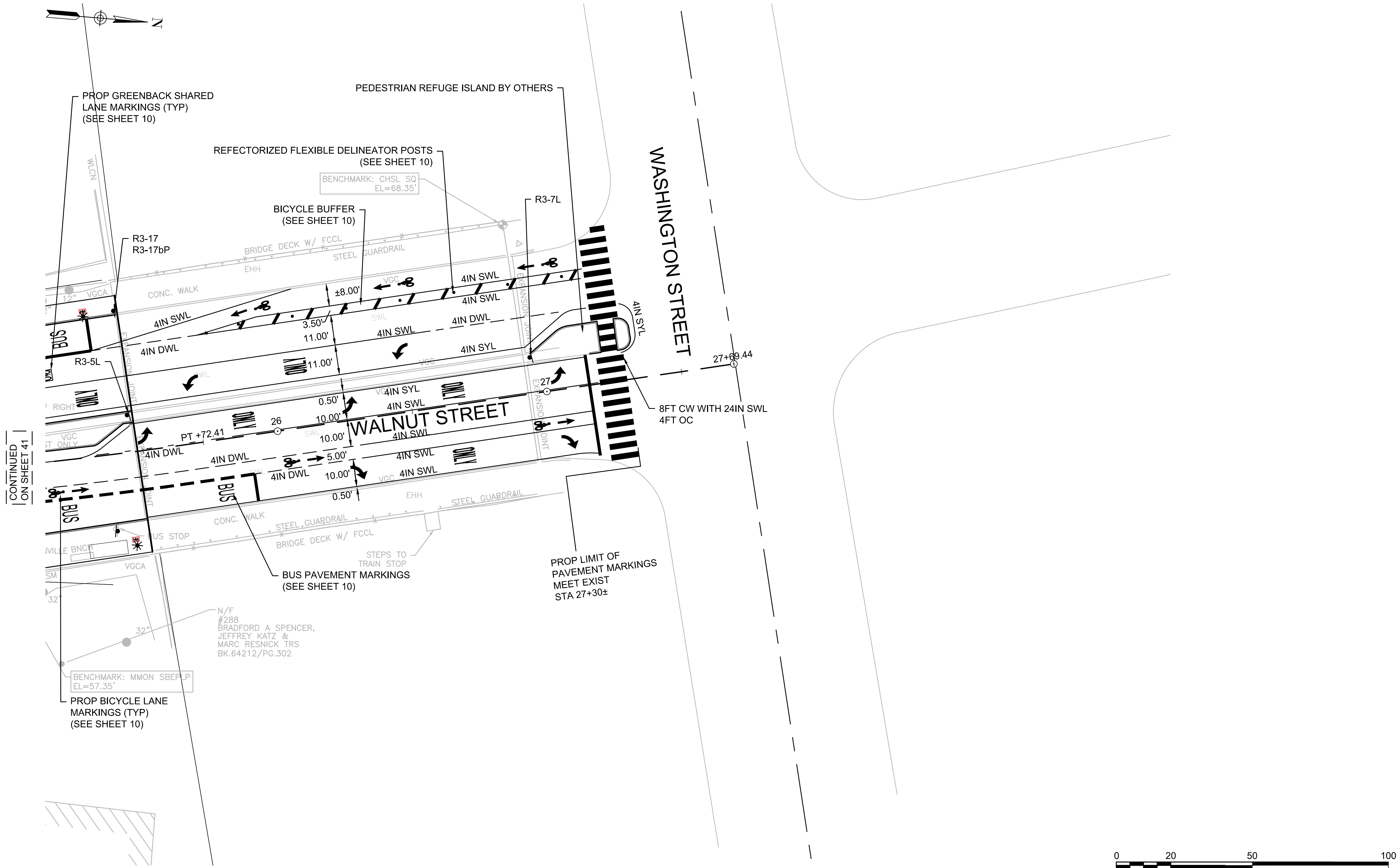
REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS	Sheet No.
TRAFFIC SIGN AND PAVEMENT MARKING PLAN- 02	40 AS NOTED



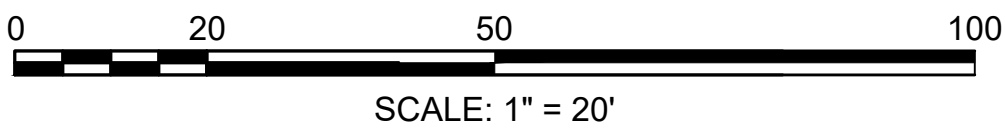




Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet14\_Traffic Sign and Pavement Markings Plan.dwg Plot Date: Aug 02 2019 5:31 pm



- NOTES:
1. ALL NEW PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
  2. REMOVE AND STACK ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.
  3. EXISTING PAVEMENT MARKINGS BEYOND THE LIMITS OF ROADWAY WORK IN CONFLICT WITH PROPOSED PAVEMENT MARKING LIMITS SHALL BE GROUND OUT.
  4. EXISTING ASPHALT BROKEN OUT DUE TO PAVEMENT MARKING REMOVAL PROCESS SHALL BE NEATLY SAWCUT AND PERMANENT PATCHED AT THE DIRECTION OF THE ENGINEER AND CONSIDERED INCIDENTAL TO THE PAVEMENT MARKING REMOVAL.



				Scale	AS NOTED
				Date	AUGUST 2019
				Job No.	R326-1605.00
				Designed by	JRC
				Drawn by	AMF
				Checked by	BLH
				Approved by	JDF
MARK	DATE	DESCRIPTION			

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS		Sheet No.  42  AS NOTED
TRAFFIC SIGN AND PAVEMENT MARKING PLAN- 04		



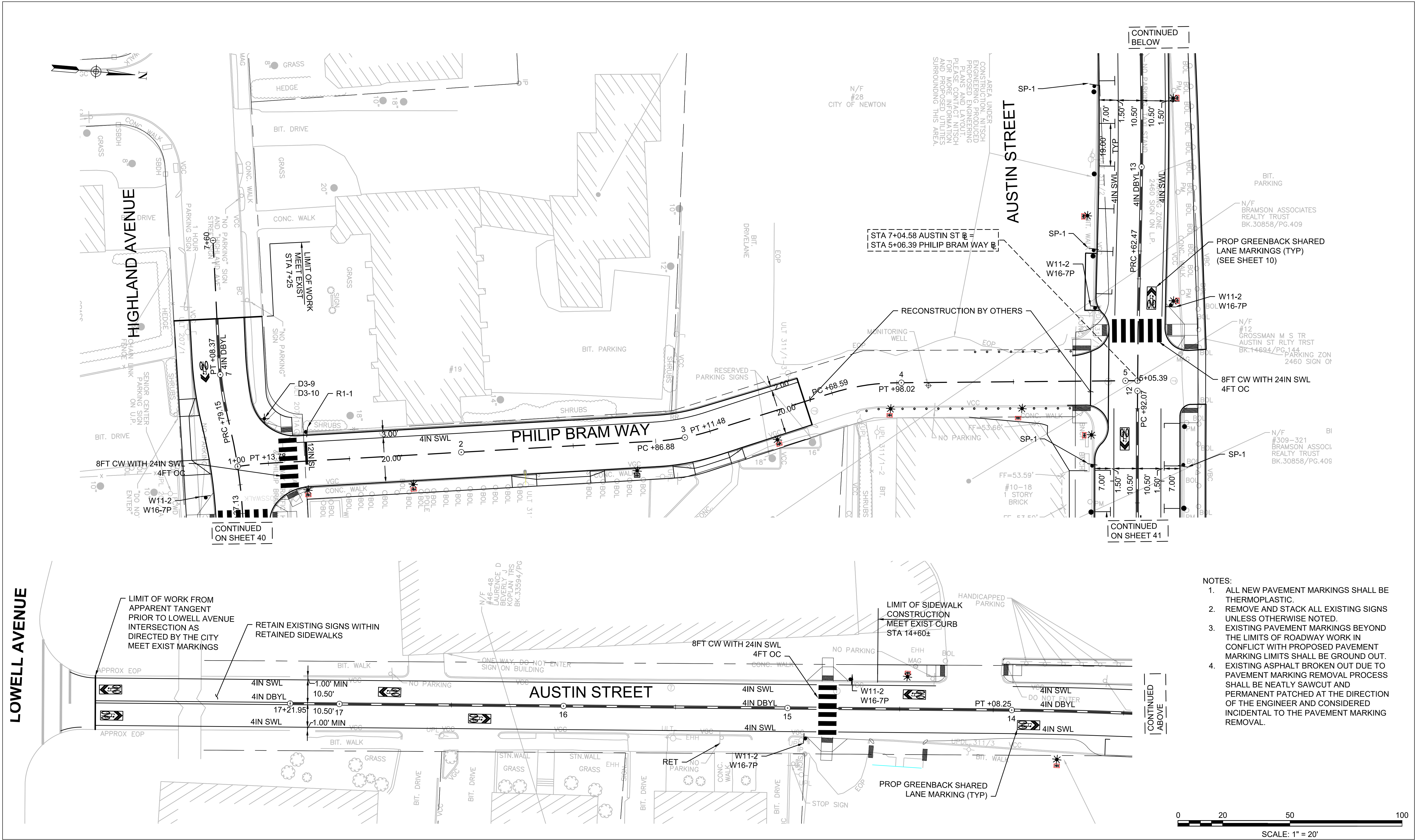
Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet\14\_Traffic Sign and Pavement Markings Plan.dwg Plot Date: Aug 07, 2019 7:16am



				Scale	AS NOTED
				Date	AUGUST 2019
				Job No.	R326-1605.00
				Designed by	JRC
				Drawn by	AMF
				Checked by	BLH
				Approved by	JDF
MARK	DATE	DESCRIPTION			

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS		Sheet No.
TRAFFIC SIGN AND PAVEMENT MARKING PLAN- 05		43
		AS NOTED





TRAFFIC SIGN SUMMARY

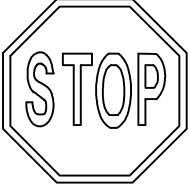






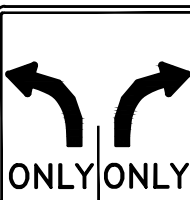



IDENTIFI- CATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)		NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING		BACK- GROUND	LEGEND	BORDER			
D3-1	VARIES	12	<div>Walnut St</div>	MUTCD STANDARD		9	MUTCD STANDARD			P5 (9)	EACH	EACH
D3-2	VARIES	12	<div>Elm Rd</div>			1				MOUNT WITH D3-1 & R10-7 (1)	EACH	EACH
D3-3	VARIES	12	<div>Russell Ct</div>			1				P5 (1)	EACH	EACH
D3-4	VARIES	12	<div>Cabot St</div>			1				MOUNT WITH D3-1 (1)	EACH	EACH
D3-5	VARIES	12	<div>Otis St</div>			1				MOUNT WITH D3-1 & R1-1 (1)	EACH	EACH
D3-6	VARIES	12	<div>Claflin Pl</div>			1				P5 (1)	EACH	EACH
D3-7	VARIES	12	<div>Walnut Pl</div>			1				MOUNT WITH D3-1 (1)	EACH	EACH
D3-8	VARIES	12	<div>Washington Pk</div>			1				MOUNT WITH D3-1 & W11-2 & W16-7P (1)	EACH	EACH
D3-9	VARIES	12	<div>Highland Ave</div>			2				MOUNT WITH D3-1 & R1-1 (1); P5 (1)	EACH	EACH
D3-10	VARIES	12	<div>Philip Bram Way</div>			1				MOUNT WITH D3-9 (1)	EACH	EACH
D3-11	VARIES	12	<div>Madison Ave</div>			1				MOUNT WITH D3-1 & SP-2R (1)	EACH	EACH
D3-12	VARIES	12	<div>Austin St</div>			1				MOUNT WITH R1-1 & D3-1 (1)	EACH	EACH
D3-13	VARIES	12	<div>Newtonville Ave</div>			1				MOUNT WITH D3-1 (1)	EACH	EACH
D4-1L	30	24	<div><div>P</div><div>←</div><div>ARKING</div></div>			2				MOUNT WITH R4-7 (1) & D4-1L; P5 (1)	5.00	10.00
D4-1R	30	24	<div><div>P</div><div>→</div><div>ARKING</div></div>			3				MOUNT WITH R4-7 & D4-1L; P5 (2)	5.00	15.00
MA-R10-12a	30	36	<div><div>LEFT TURN YIELD ON FLASHING</div><div>↶</div></div>	MASSDOT STANDARD		1	MASSDOT STANDARD			MOUNTED ON MASTARM	7.50	7.50
OM1-1	18	18	<div><div>◊</div></div>	MUTCD STANDARD		1	MUTCD STANDARD			P5 (1)	2.25	2.25
OM3-L	12	36	<div><div>▨</div></div>	MUTCD STANDARD		1	MUTCD STANDARD			P5 (1)	3.00	3.00

SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION WITH LATEST REVISIONS AND MASSACHUSETTS AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR.

Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet15\_Traffic Sign Summary.dwg Plot Date: Aug 02 2019 4:53:39pm



TRAFFIC SIGN SUMMARY

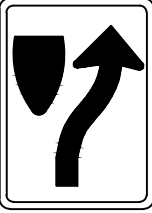







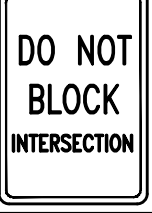


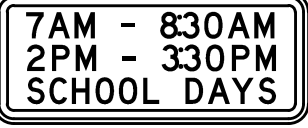
IDENTIFI- CATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)		NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING		BACK- GROUND	LEGEND	BORDER			
R1-1	30	30		MUTCD STANDARD		11	MUTCD STANDARD			MOUNT WITH D3-1 & D3-5 (1); D3-1 & D3-9 (1); D3-1 & D3-12 (1); R3-2 & R5-1 (1); P5 (7)	6.25	68.75
R2-1	18	24				1				P5 (1)	3.00	3.00
R3-2	24	24				2				P5 (2)	4.00	8.00
R3-5L	30	36				1				P5 (1)	7.50	7.50
R3-5R	30	36				1				P5 (1)	7.50	7.50
R3-7L	30	30				1				P5 (1)	6.25	6.25
R3-8L	30	30				2				P5 (2)	6.25	12.50
R3-8LR	30	30				1				P5 (1)	6.25	6.25
R3-17	24	18				4				P5 (4)	3.00	12.00
R3-17aP	24	8				1				MOUNT WITH R13-17 (1)	1.33	1.33
R3-17bP	24	8				1				MOUNT WITH R13-17 (1)	1.33	1.33

SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION WITH LATEST REVISIONS AND MASSACHUSETTS AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR.

Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet15\_Traffic Sign Summary.dwg Plot Date: Aug 12 2019 5:40pm



TRAFFIC SIGN SUMMARY





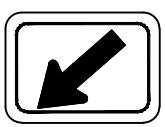
IDENTIFI- CATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)		NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING		BACK- GROUND	LEGEND	BORDER			
R4-7	24	30		MUTCD STANDARD		1	MUTCD STANDARD			P5 (1)	5.00	5.00
R4-11	30	30				5				P5 (5)	6.25	31.25
R5-1	30	30				4				MOUNT WITH OM3-L (1); R3-2 & R1-1 (1); P5 (2)	6.25	25.00
R7-1D	12	18				7				MOUNT WITH R3-7L (1); P5 (6)	1.50	10.50
R7-1R						1				P5 (1)	1.50	1.50
R7-3R MOD	12	18				1				P5 (1)	1.50	1.50
R7-6	12	18				1				P5 (1)	1.50	1.50
R7-8	12	18				2				P5 (2)	1.50	3.00
R7-107A	-	-		MBTA & MASSDOT STANDARDS		5	MBTA & MASSDOT STANDARDS			P5 (5)	-	-
R10-7	24	30		MUTCD STANDARD		3	MUTCD STANDARD			MOUNT WITH D3-1 & D3-2 (1); P5 (2)	5.00	15.00
R10-11b	24	24				1				MOUNT ON TRAFFIC SIGNAL SUPPORT (1)	4.00	4.00
R10-22	12	18				3				P5 (3)	1.50	4.50
S4-1P	24	10				3				MOUNT WITH R3-2 (1); R5-1 (2)	1.67	5.00

SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION WITH LATEST REVISIONS AND MASSACHUSETTS AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR.

Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet15\_Traffic Sign Summary.dwg Plot Date: Aug 02 2019 5:41 pm



TRAFFIC SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)		NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING		BACK- GROUND	LEGEND	BORDER			
SP-1	-	-	PASSPORT PARKING ZONE 2460			14				MOUNT WITH R7-3R (1); P5 (13)	-	-
SP-2L	12	18		SPECIAL SIGN SEE SHEET 10		1		SPECIAL SIGN SEE SHEET 10		MOUNT WITH W11-2 & W16-7P (1)	1.50	1.50
SP-2R	12	18		SPECIAL SIGN SEE SHEET 10		2		SPECIAL SIGN SEE SHEET 10		MOUNT WITH D3-1 & D3-11 (1); R7-1D (1)	1.50	3.00
W11-2	30	30		MUTCD STANDARD		16		MUTCD STANDARD		P5 (16)	6.25	100.00
W14-1	30	30				1				MOUNT WITH D3-6 (1)	6.25	6.25
W16-7P	24	12				16				MOUNT WITH W11-2 (15); D3-1 & D3-8 & W11-2 (1);	2.00	32.00

SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION WITH LATEST REVISIONS AND MASSACHUSETTS AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR.

Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet15\_Traffic Sign Summary.dwg Plot Date: Aug 02 2019 5:42pm

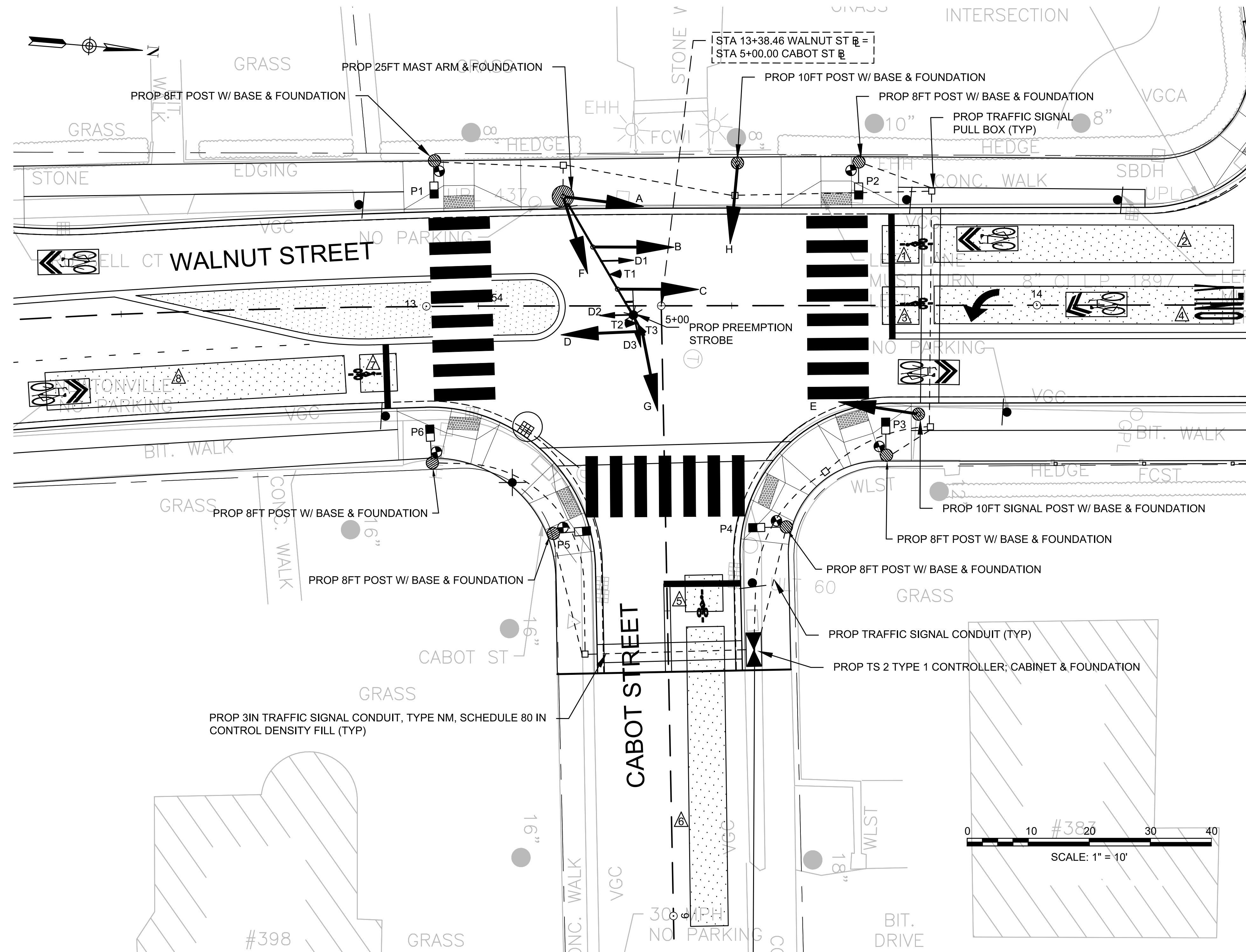


			Scale	NTS
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	AMF
			Drawn by	AMF
			Checked by	JRC
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet16\_Traffic Signal Plan.dwg Plot Date: Aug 02 2019 12:50pm



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**

				Scale	AS NOTED
				Date	JULY 2019
				Job No.	R326-1605.00
				Designed by	AMF
				Drawn by	AMF
				Checked by	JDF
				Approved by	JDF
MARK	DATE	DESCRIPTION			

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TRAFFIC SIGNAL PLAN - 01

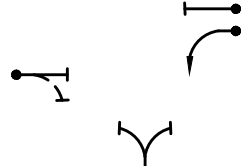
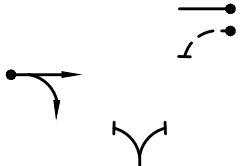
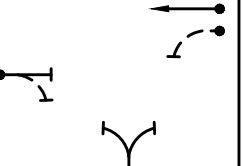
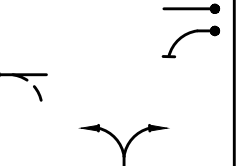
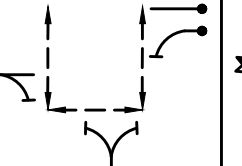
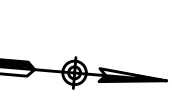
Sheet No.

48

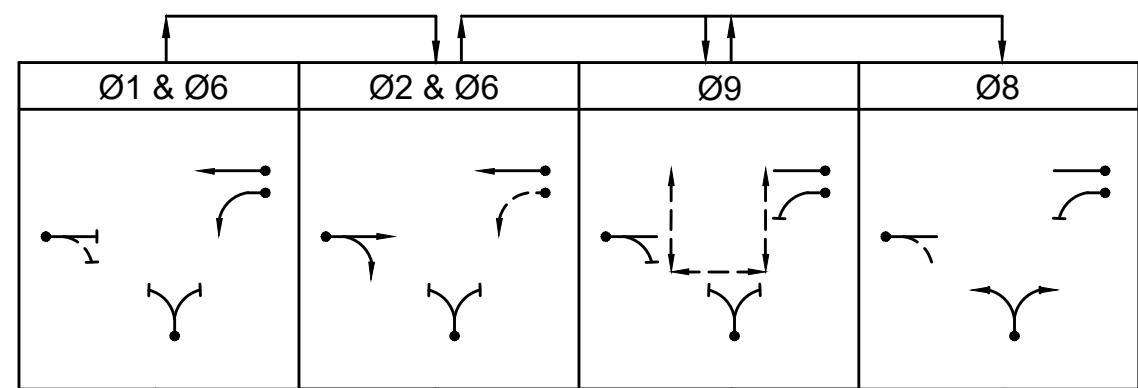
AS NOTED



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet16\_Traffic Signal Plan.dwg Plot Date: Aug 02,2019 12:50pm

PREFERENTIAL PHASE SEQUENCE DIAGRAM																						
FULLY-ACTUATED <input checked="" type="checkbox"/>			UNCOORDINATED <input checked="" type="checkbox"/>			Ø1			Ø2			Ø6			Ø8			Ø9			NORTH	
SEMI-ACTUATED <input type="checkbox"/>			COORDINATED <input type="checkbox"/>																			
PRE-TIMED <input type="checkbox"/>			WIRE <input type="checkbox"/> TBCU <input type="checkbox"/>																			
SEQUENCE AND TIMING																						
STREET		DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	FLASH OPER.			
WALNUT STREET		SB	A,B	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY			
			C	GLA	YLA	FYLA	FYLA	RLA	R	R	R	R	R	R	R	R	R	R	FYA			
WALNUT STREET		NB	D,E	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY			
CABOT STREET		SB	F,G,H	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	FR			
PEDESTRIAN		NB,SB	P1,P2,P3,P6	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT			
PEDESTRIAN		EB,WB	P4,P5	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT			
TIMING IN SECONDS																						
MINIMUM INITIAL				5			5			5			5						EMERGENCY			
PASSAGE				3			3			3			3									
MAXIMUM 1				5			20.5			30.5			10									
MAXIMUM 2				5			31.5			41.5			19									
YELLOW CLEARANCE					3			3.5			3.5			3								
ALL RED CLEARANCE						2			1			1			2							
WALK INTERVAL																7	9					
CLEARANCE INTERVAL																		4				
RECALL				OFF			SOFT			SOFT			OFF			OFF						
MEMORY				NON-LOCKING			NON-LOCKING			NON-LOCKING			NON-LOCKING			LOCKING						

\* MAX 2 TO OPERATE MONDAY THRU FRIDAY 7-9AM & 3-7PM  
MAX 1 TO OPERATE ALL OTHER TIMES

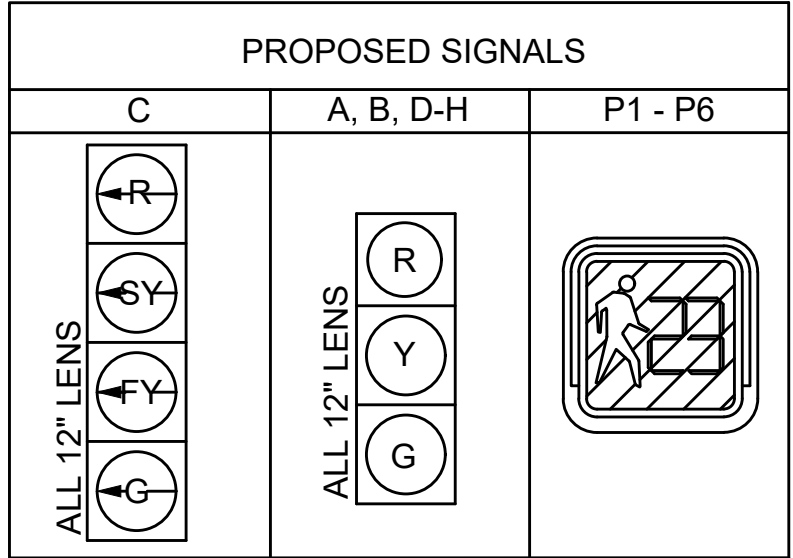


PREFERENTIAL PHASE SEQUENCE DIAGRAM

TRAFFIC SIGNAL AND PHASING NOTES:

- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE THE SIGNAL INDICATIONS FOR THAT MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE THE SIGNAL INDICATION FOR THAT TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVAL.

DETECTOR DATA						
DETECTOR NO.	ZONE SIZE	VEHICLE SENSOR	Ø CALLED	UTILIZATION PHASE	DELAY TIME	EXT. TIME
1	TO BE FIELD ADJUSTED	T1	-	Ø2 & Ø6	-	-
2	TO BE FIELD ADJUSTED	T1	Ø2 & Ø6	-	-	-
3	TO BE FIELD ADJUSTED	T1	-	Ø1 & Ø6	-	-
4	TO BE FIELD ADJUSTED	T1	Ø1 & Ø6	-	-	-
5	TO BE FIELD ADJUSTED	T3	-	Ø8	-	-
6	TO BE FIELD ADJUSTED	T3	Ø8	-	-	-
7	TO BE FIELD ADJUSTED	T2	-	Ø2 & Ø6	-	-
8	TO BE FIELD ADJUSTED	T2	Ø2 & Ø6	-	-	-



1. ALL INDICATIONS SHALL BE L.E.D. LENSES IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND EQUIPPED WITH CAP VISORS.

2. ALL PEDESTRIAN INDICATIONS SHALL BE 16" COUNTDOWN L.E.D. AND BE EQUIPPED WITH SUN CAP VISORS.

3. ALL SIGNALS SHALL BE RIGIDLY MOUNTED AND EQUIPPED WITH 5" LOUVERED BACKPLATES WITH RETROREFLECTIVE BORDER.

PRE-EMPTION PHASING & PRIORITY			
DETECTOR & PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø1 & Ø6
D2	2		Ø2 & Ø6
D3	3		Ø8

EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.

PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH DETECTORS 1, 2, OR 3 ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (1 HIGHEST AND 3 LOWEST)

IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3 SECONDS: YELLOW AND 2 SECONDS ALL RED) AND SERVICE EMERGENCY VEHICLE PRE-EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE-EMPTION PHASE #3 SHALL BE SIMILARLY SERVED.

MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.

OPTICAL PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.

ITEM 816.01

TRAFFIC CONTROL SIGNALS MAJOR ITEMS REQUIRED	
QUAN.	ITEM
1	REMOVE AND STACK EXISTING TRAFFIC SIGNAL POSTS AND CAP CONDUIT; REMOVE AND DISPOSE OF FOUNDATIONS
1	REMOVE AND STACK VEHICULAR AND PEDESTRIAN SIGNAL HEADS, PEDESTRIAN PUSH BUTTONS, EMERGENCY PRE-EMPTION EQUIPMENT, AND CONTROLLER
1	25' MAST ARM STRUCTURE-TYPE II MONOLEVER & FOUNDATION*
2	10' SIGNAL POST, BASE & FOUNDATION
6	8' SIGNAL POST, BASE & FOUNDATION
3	SIGNAL HEAD-1 WAY-3 SECTION-12" L.E.D. SIGNAL LENSES
2	SIGNAL HEAD-2 WAY-3 SECTION-12" L.E.D. SIGNAL LENSES
1	SIGNAL HEAD-1 WAY-4 SECTION-12" L.E.D. SIGNAL LENSES
6	PEDESTRIAN SIGNAL HEAD - 16" COUNTDOWN L.E.D.
6	PEDESTRIAN AUDIBLE & VIBRO-TACTILE PUSH BUTTON, SIGN & SADDLE WITH LED CONFIRMATION
8	5" LOUVERED BACKPLATES WITH RETROFLECTIVE BORDER
6	12"x12" PULL BOX - SD2.031 (ITEM 811.31)
1	TS CONTROLLER TYPE 1 WITH MONITOR AND CAPABILITY OF FUTURE INTERNAL ADAPTIVE CONTROL BY CYCLE/SPLIT/OFFSET
1	SERVICE CONNECTION (OVERHEAD) (ITEM 813.80)
1	VIDEO DETECTION SYSTEM (SCANNERS, INTERFACE BOARD, CAMERAS, EXTENSION ARMS, PROCESSOR & CABLES)
1	EMERGENCY PRE-EMPTION SYSTEM INCLUDING STROBE, OPTICAL DETECTORS, AND PHASE SELECTORS
1	GPS BASED EMERGENCY VEHICLE PRE-EMPTION SYSTEM
1	MALFUNCTION MANAGEMENT UNIT
1	BATTERY BACK UP SYSTEM
1	REMOTE CONNECTION VIA CABLE MODEM
	PLUS ALL MISC. EQUIPMENT, CABLE WIRING AND INCIDENTALS NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.

\* STANDARD MAST ARMS CONFORMING TO MASSDOT REQUIREMENTS AND THE SPECIAL PROVISIONS SHALL BE INCLUDED UNDER ITEM 816.02

ITEM 816.01

EMERGENCY VEHICLE PRIORITY CONTROL SYSTEM LIST OF MAJOR ITEMS REQUIRED	
QUAN.	DESCRIPTION
1	OPTICOM 4-CHANNEL PHASE SELECTOR KIT (OPTICOM MODEL 754)
1	CONFIRMATION WHITE STROBE LIGHT
1	OPTICAL DETECTOR (UNIDIRECTIONAL) (OPTICOM MODEL 711)
1	OPTICAL DETECTOR (BI-DIRECTIONAL) (OPTICOM MODEL 722)
PLUS ALL MISCELLANEOUS EQUIPMENT, CABLE AND INCIDENTAL MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING CONTROL SYSTEM.	



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**

			Scale	N/A
			Date	JULY 2019
			Job No.	R326-1605.00
			Designed by	AMF
			Drawn by	AMF
			Checked by	JDF
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TRAFFIC SIGNAL PLAN - 02

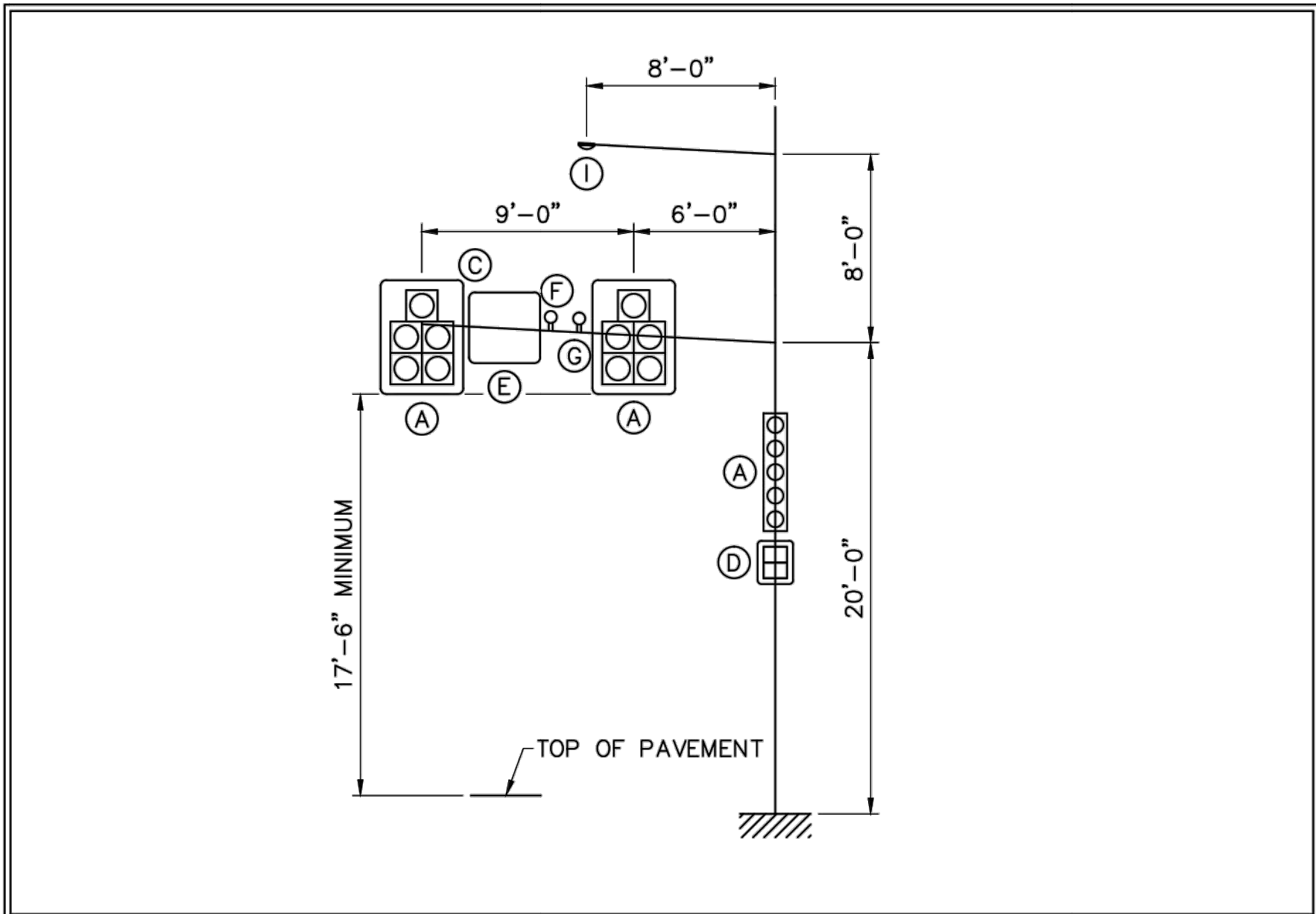
Sheet No.

49

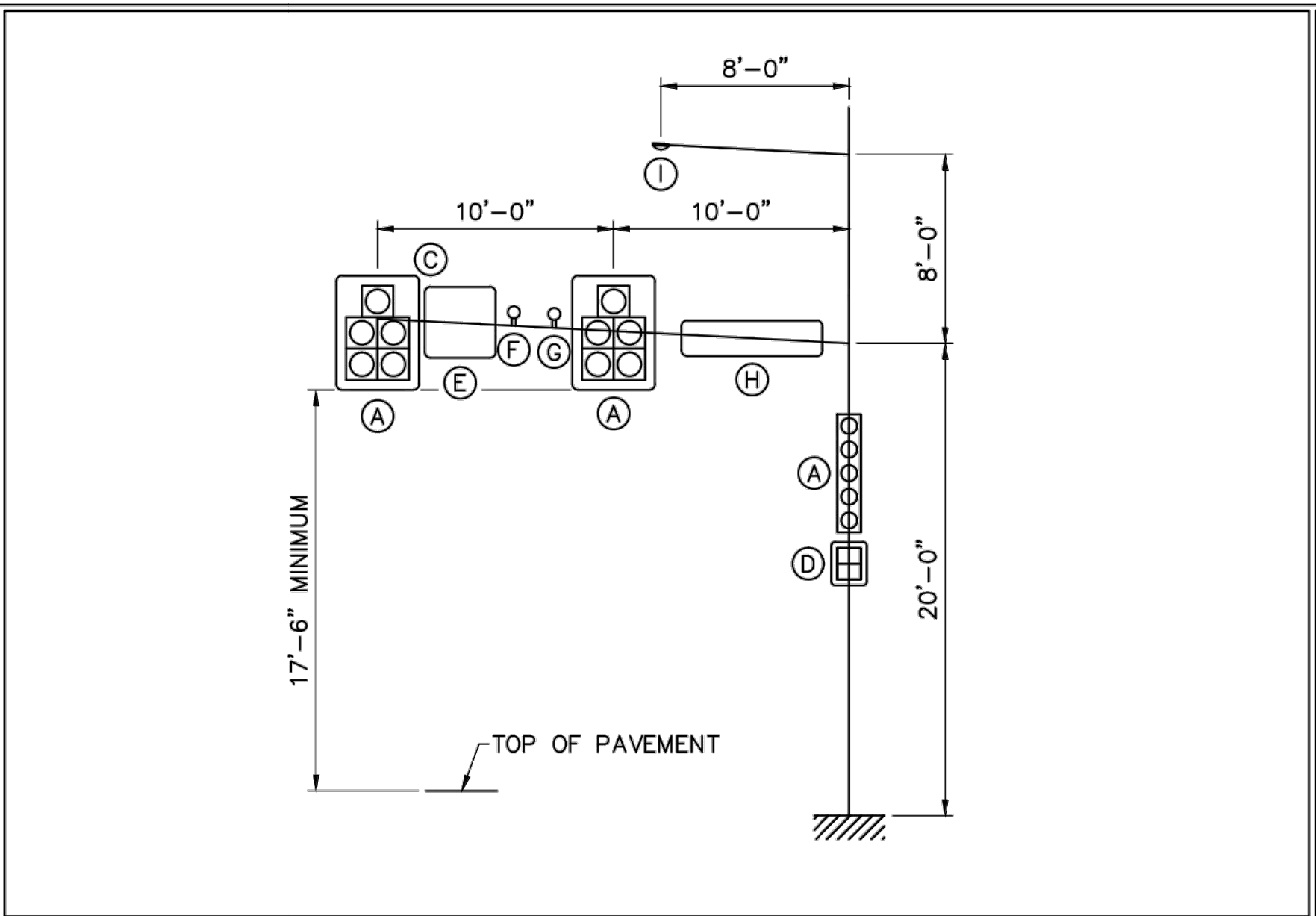
AS NOTED



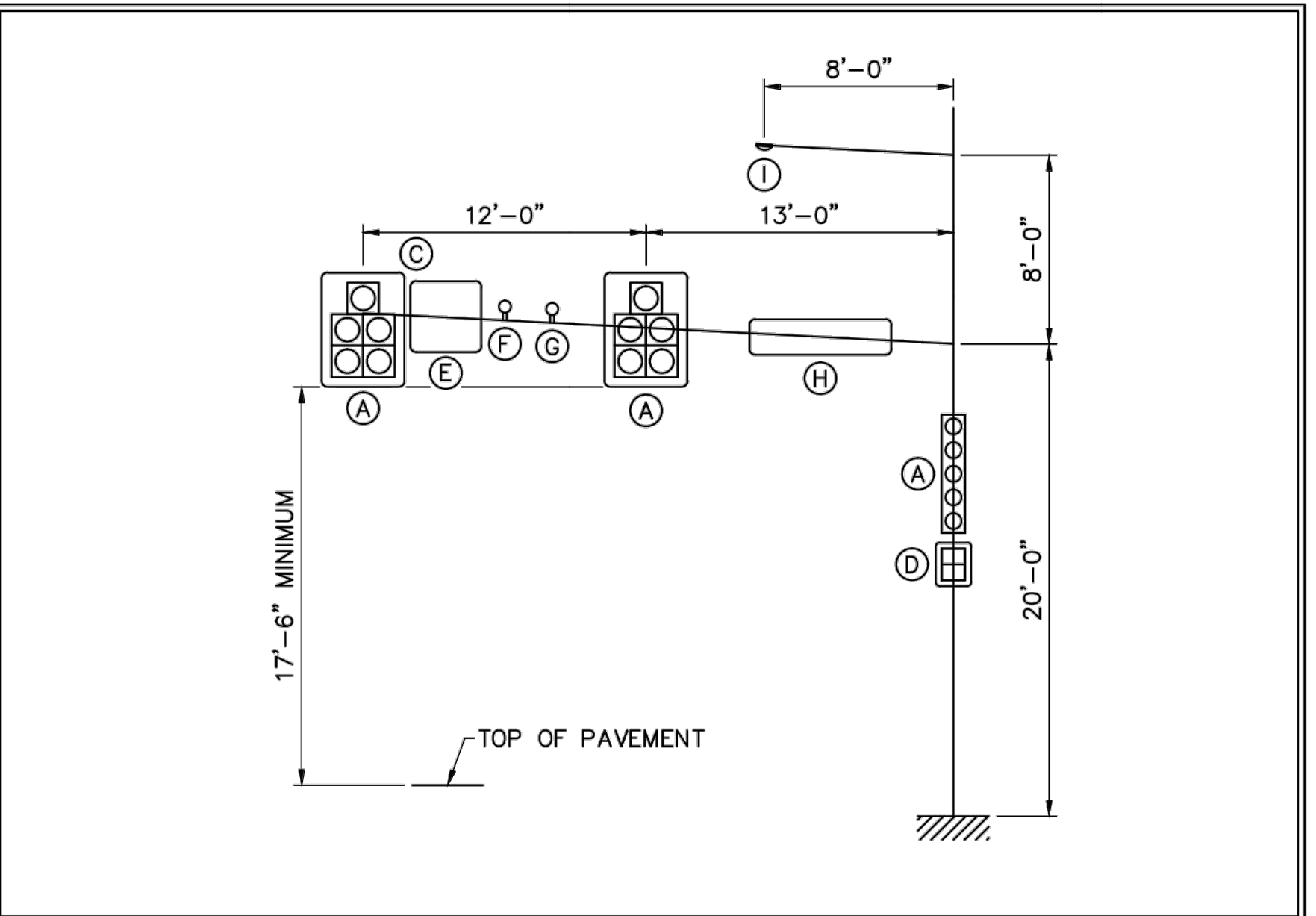
Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet18\_Mast Arm Standard Details.dwg Plot Date: Aug 02 2019 5:51 pm



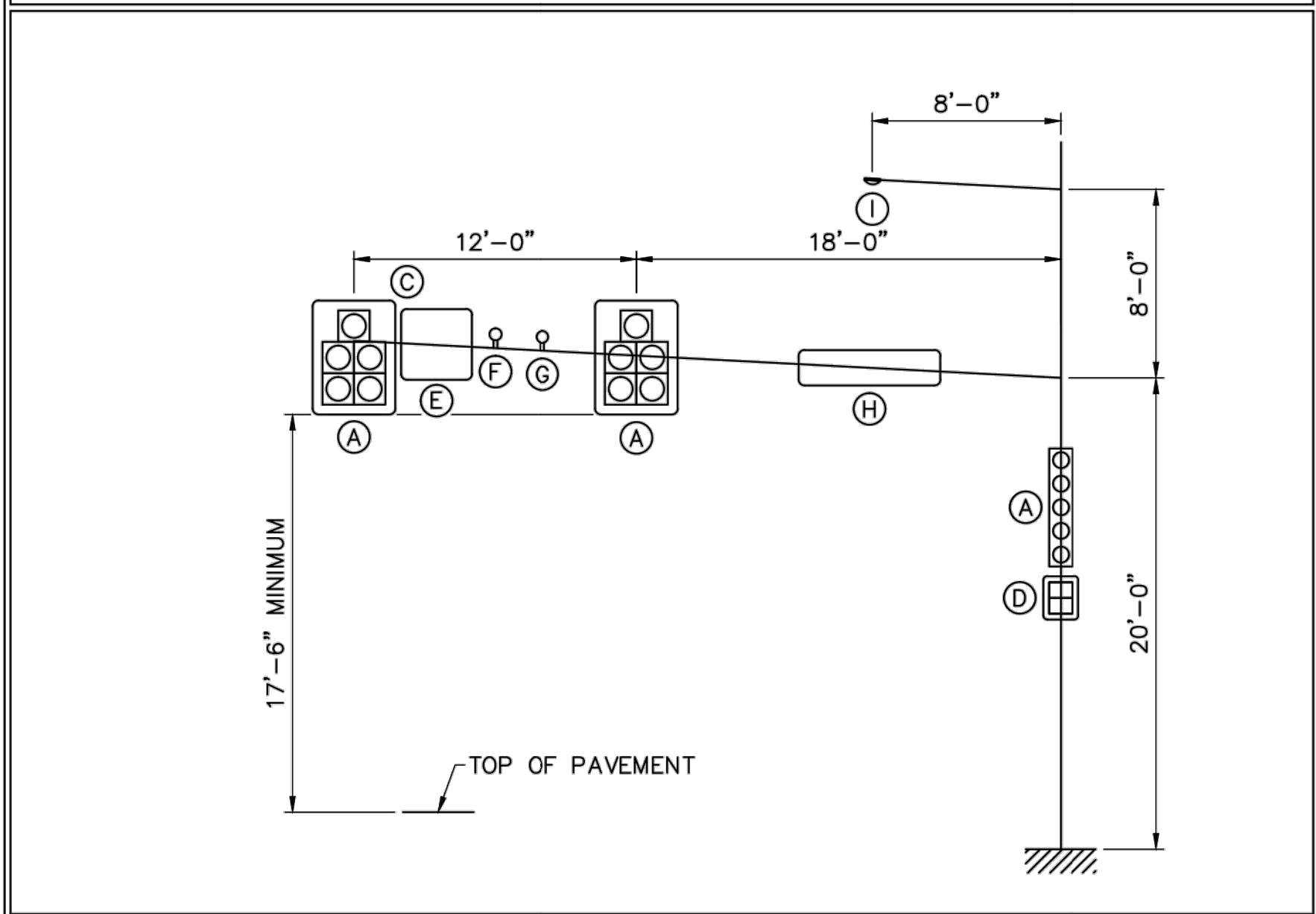
15' SPAN



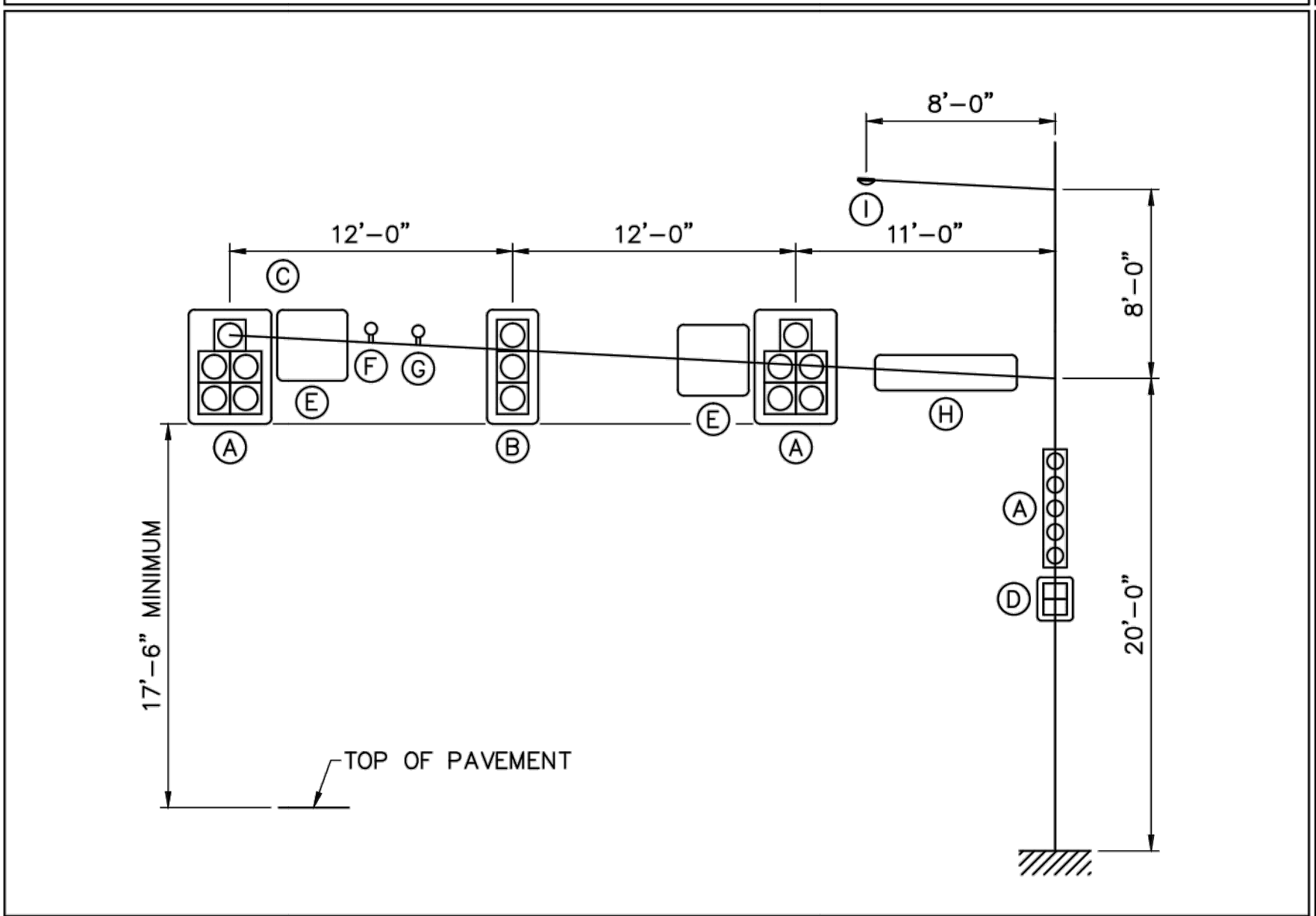
20' SPAN



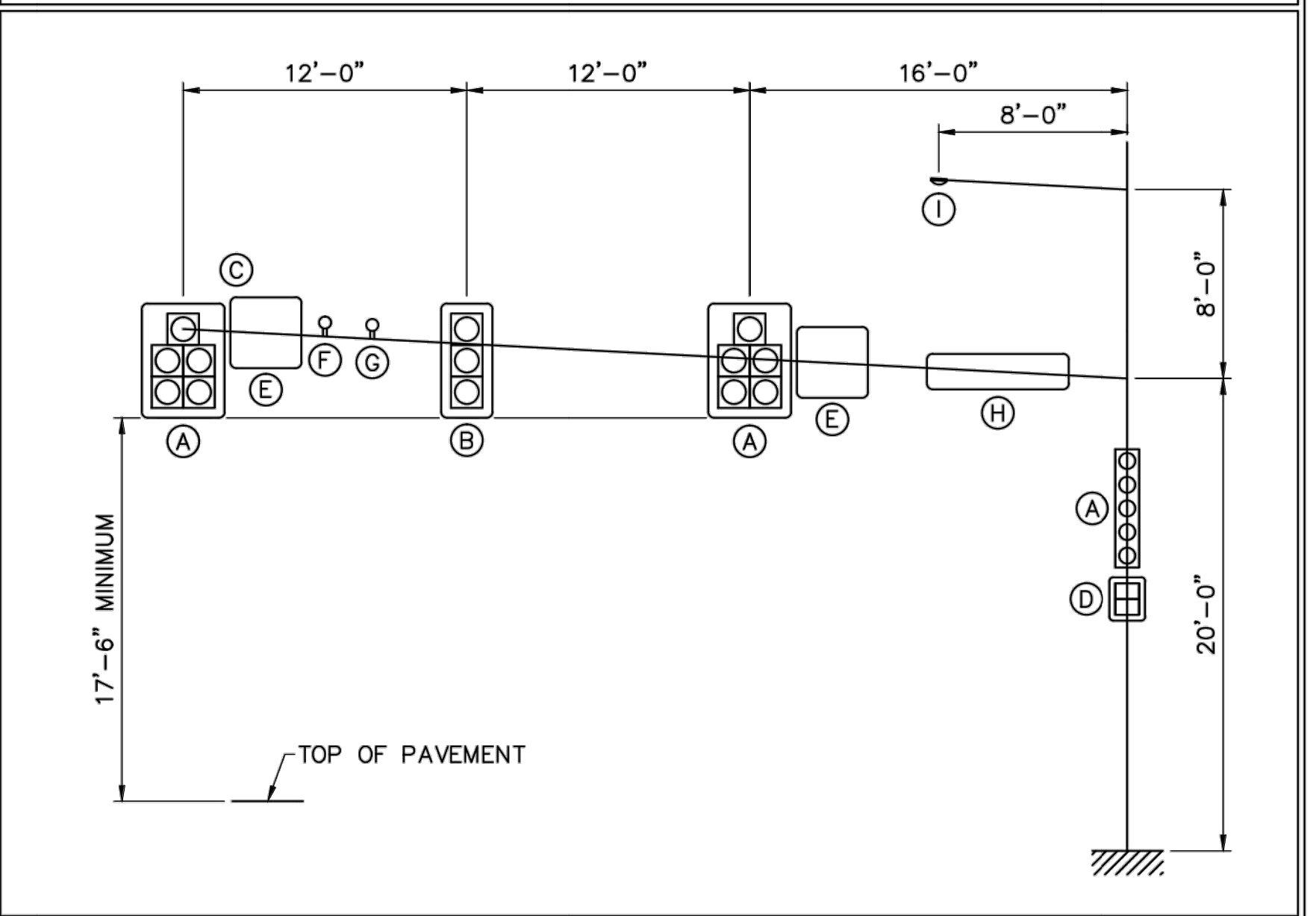
25' SPAN



30' SPAN



35' SPAN



40' SPAN

DESIGN LOADING						
DEVICE	DESCRIPTION	PROJ. AREA (FT^2)	WEIGHT (LBS)	DEVICE	DESCRIPTION	PROJ. AREA (FT^2)
(A)	5 SECTION, 1 WAY SIGNAL	13.33	110	(F)	DETECTOR	1.00
(B)	3 SECTION, 1 WAY SIGNAL	8.67	74	(G)	STROBE	1.00
(C)	DAMPENER PLATE (NOT SHOWN)	0.00	9	(H)	72" X 18" STREET NAME SIGN	9.00
(D)	DUAL PEDESTRIAN SIGNAL	8.00	80	(I)	OPTIONAL LUMINAIRE	3.30
(E)	36" X 36" REGULATORY SIGN	9.00	12			

NOTE: ALL SIGNALS HAVE 5.0" NON-LOUVERED BACKPLATES WITH REFLECTIVE BORDERS

**massDOT**  
Massachusetts Department of Transportation  
Highway Division

STANDARD DRAWINGS  
OVERHEAD SIGNAL STRUCTURE & FOUNDATION  
15' - 40' ARM  
LOAD DIAGRAMS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS  
DECEMBER, 2015

SHEET 2 OF 7 SHEETS



**Environmental Partners**  
A partnership for engineering solutions. GROUP

Scale	N/A
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	BLH
Drawn by	AMT
Checked by	JDF
Approved by	JDF

MARK DATE DESCRIPTION

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TRAFFIC SIGNAL MAST ARM DETAILS - 01

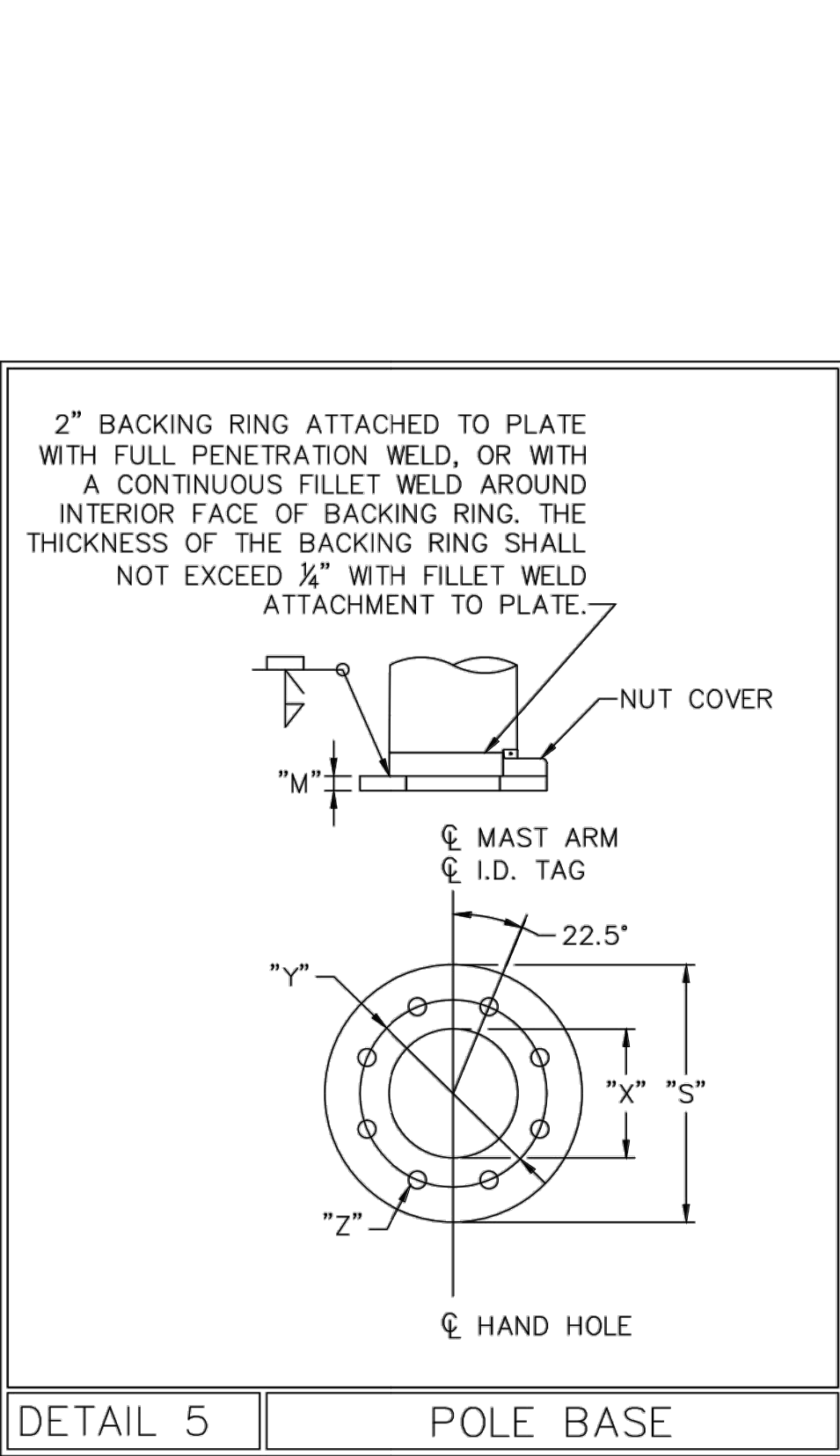
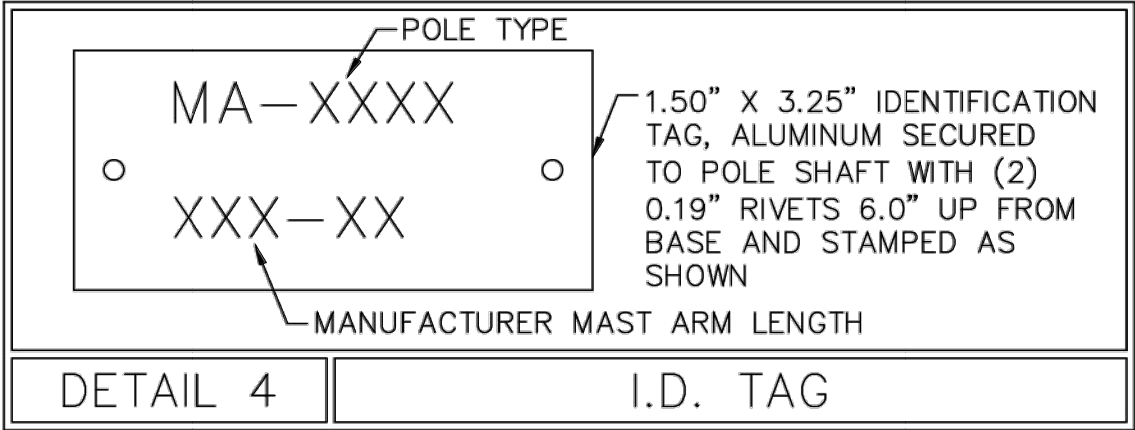
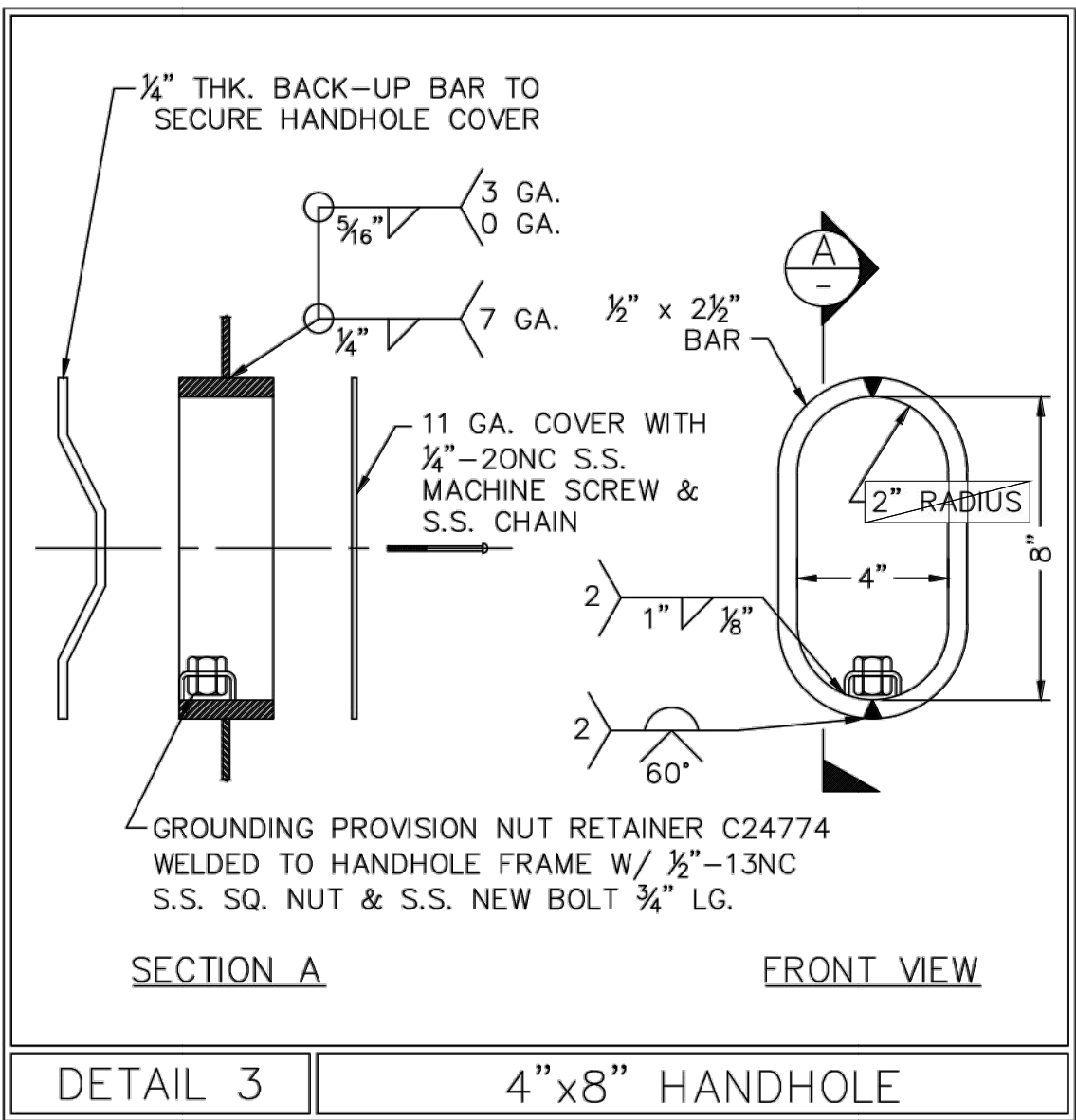
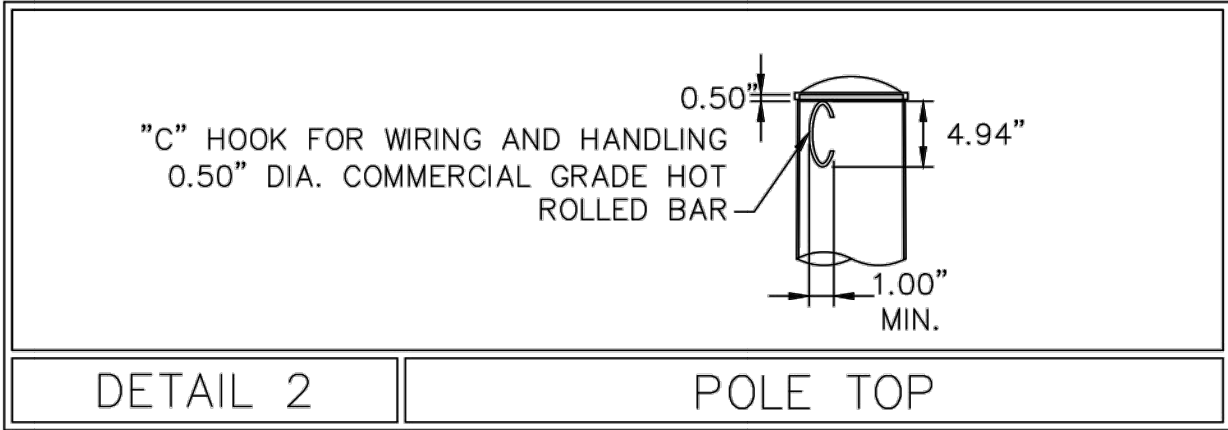
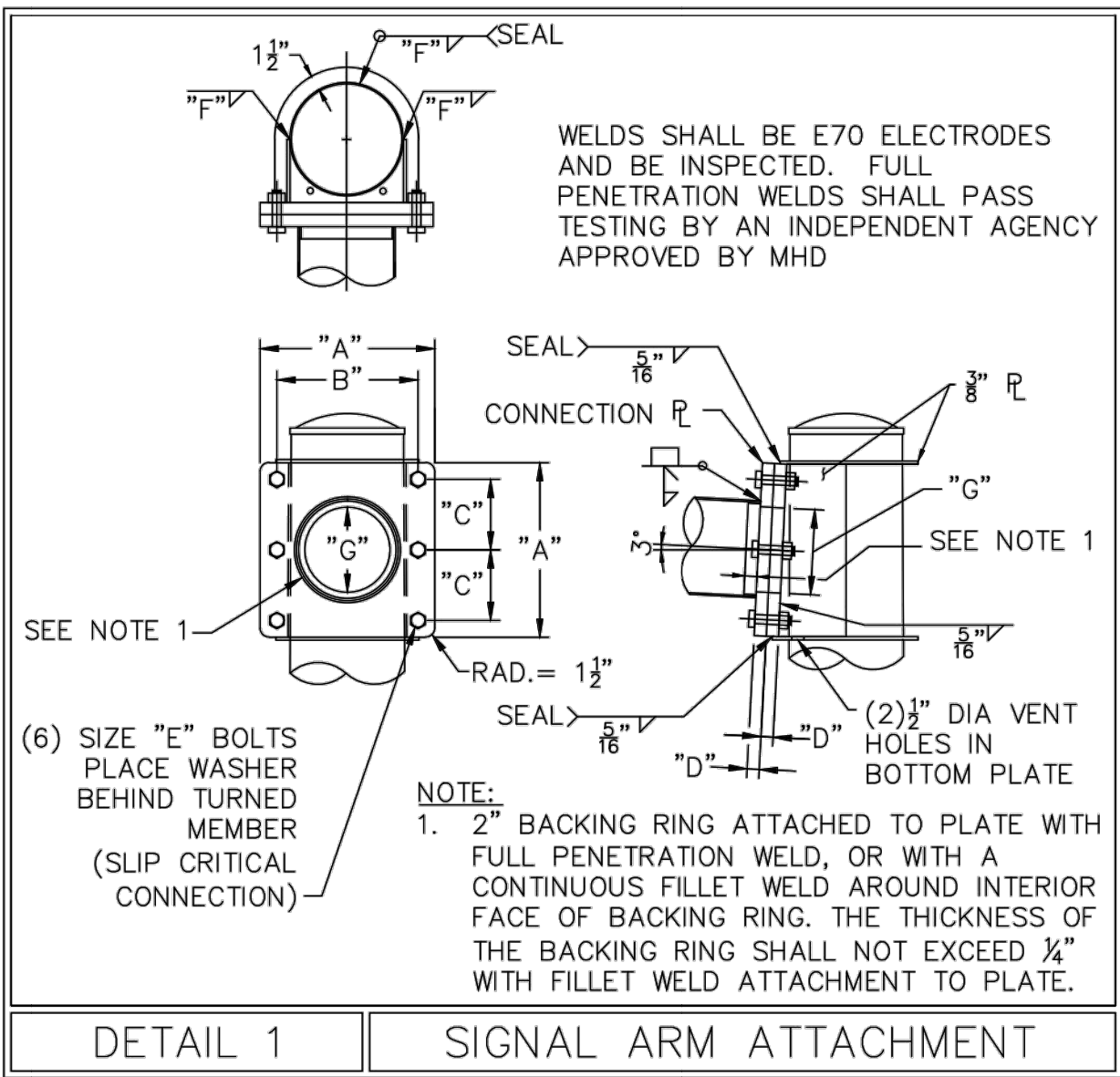
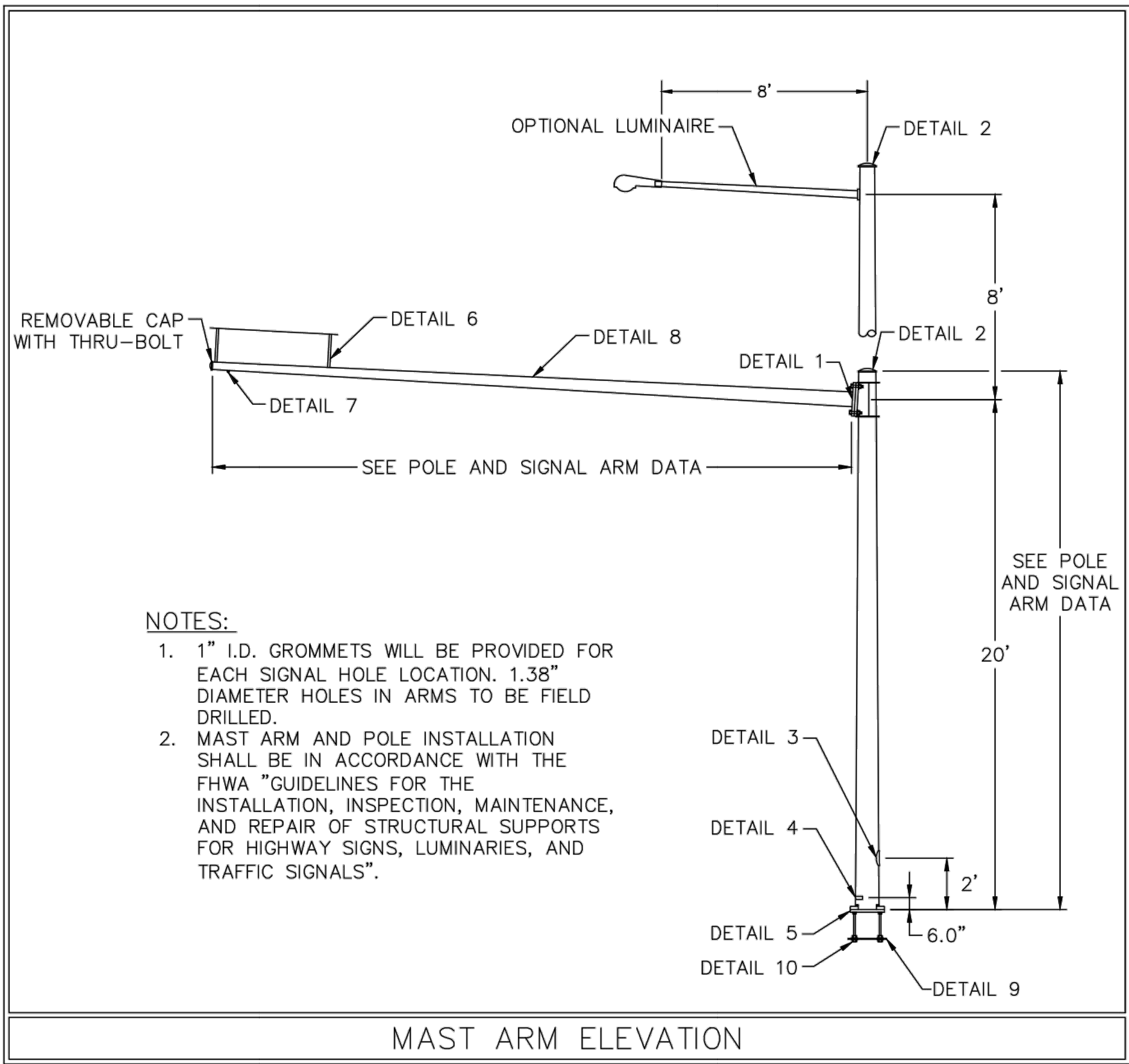
Sheet No.

49

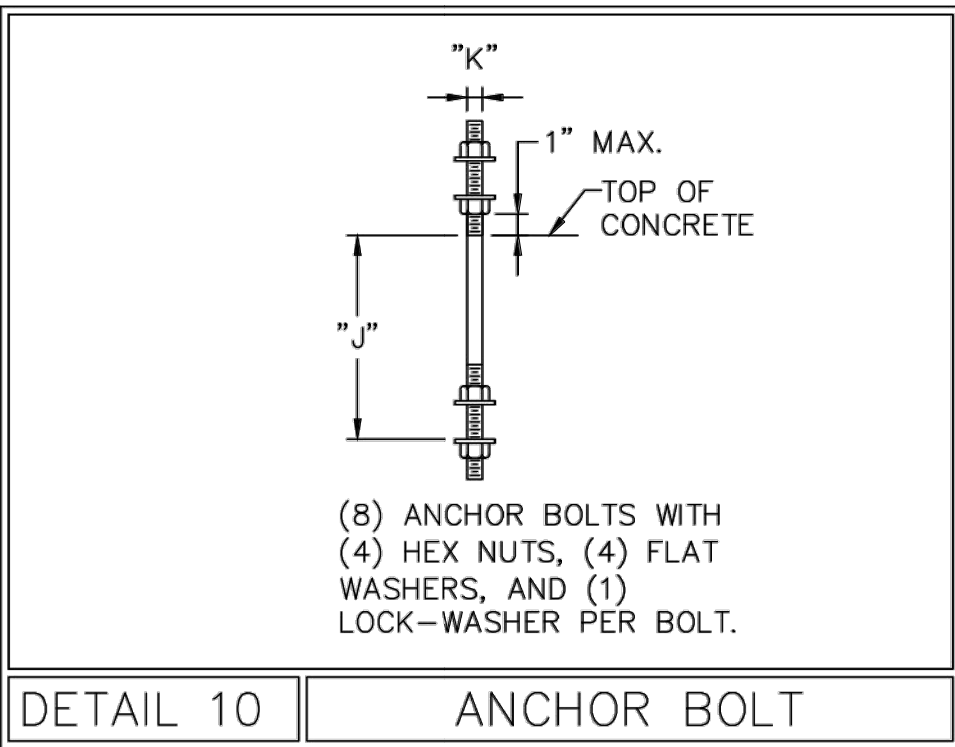
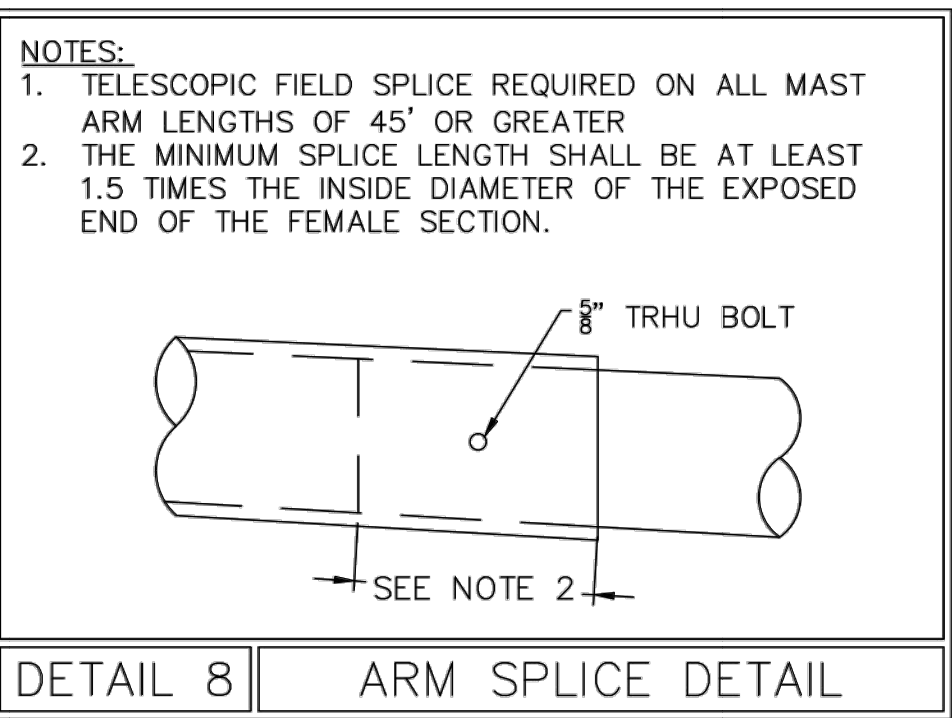
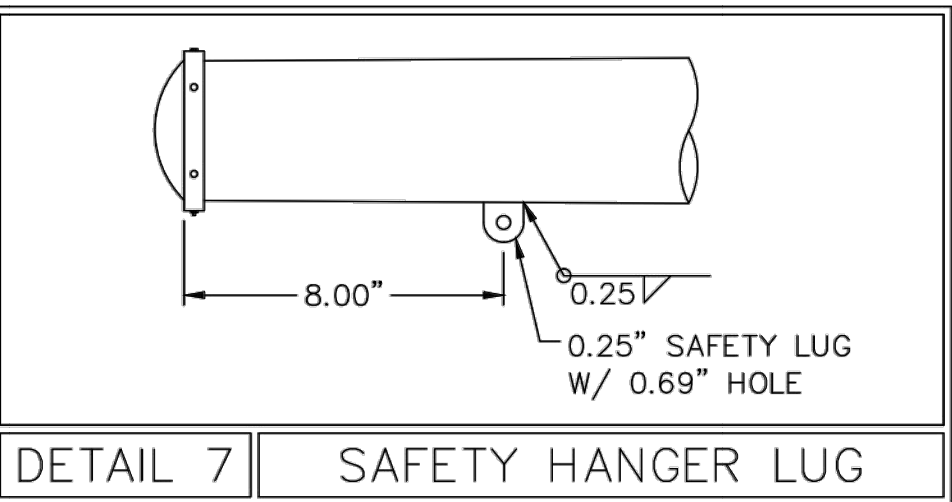
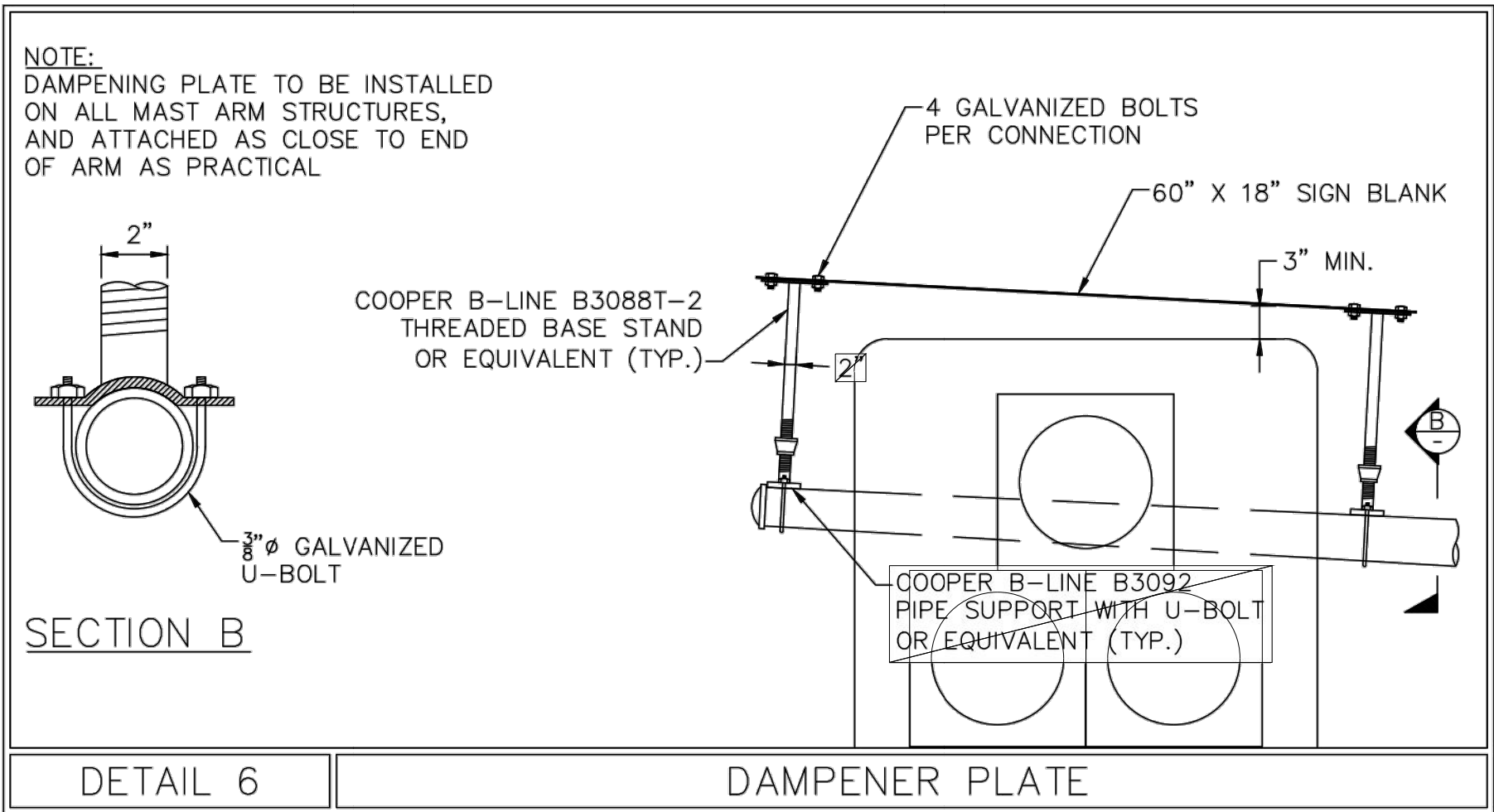
AS NOTED



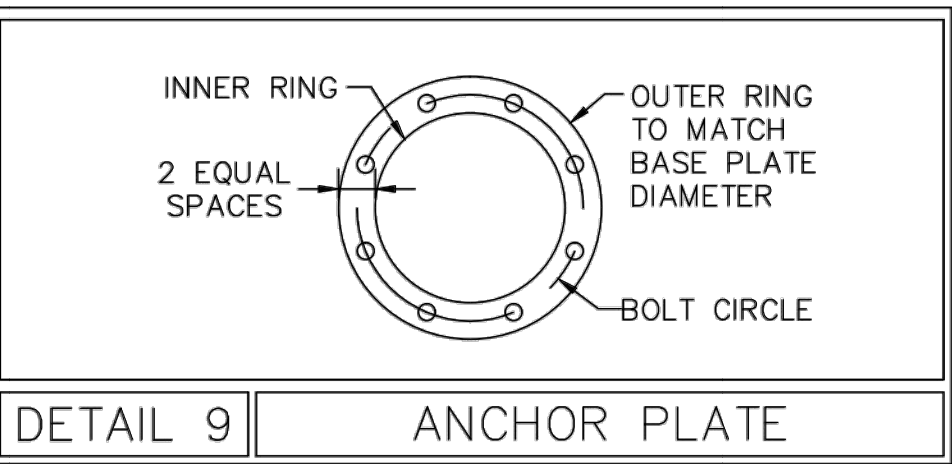
Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet18\_Mast Arm Standard Details.dwg Plot Date: Aug 02 2019 5:52pm



MATERIAL DATA		
COMPONENT	DESIGNATION	YIELD (KSI)
POLE TUBE	ASTM A595 GR. A	55
POLE BASE PLATE	AASHTO M270, OR ASTM A709	50
ANCHOR BOLTS	AASHTO M314, OR ASTM A307 GR. C	55
GALVANIZING	AASHTO M111 OR M232	
ARM TUBE	ASTM A595 GR. A	55
ARM CONNECTION PLATE	AASHTO M270, OR ASTM A709	50
ARM CONNECTING BOLTS	AASHTO M164, OR ASTM A325 **	
** BOLTS WHICH ACCUMULATE RUST OR DIRT SHALL BE DISCARDED.		



POLE AND SIGNAL ARM DATA																						
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE					ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA						
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	HOLE "X" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)	"G" (IN)
	15.00	9.00	6.90	7 GA.	13.00	9.92	22.00	7 GA.	24.00	19.00	2.00	1.50	10.00	1.25	36.00	17.25	14.00	7.00	2.00	1.00	0.188	7.00
	20.00	9.00	6.20	7 GA.	13.00	9.92	22.00	3 GA.	27.00	22.00	2.00	1.75	10.00	1.50	36.00	17.75	14.50	7.25	2.00	1.00	0.250	7.00
	25.00	10.00	6.50	7 GA.	13.00	9.92	22.00	3 GA.	27.00	22.00	2.00	1.75	10.00	1.50	36.00	18.25	15.00	7.50	2.00	1.00	0.250	7.50
	30.00	11.00	6.80	7 GA.	13.50	10.42	22.00	3 GA.	27.00	22.00	2.00	1.75	10.50	1.50	36.00	18.75	15.50	7.75	2.00	1.00	0.250	8.75
	35.00	12.00	7.10	3 GA.	15.00	11.92	22.00	3 GA.	27.00	22.00	2.00	1.75	12.50	1.50	36.00	20.25	17.00	8.50	2.00	1.25	0.313	6.50
	40.00	13.00	7.40	3 GA.	16.00	12.92	22.00	3 GA.	29.00	24.00	2.00	2.00	12.00	1.75	36.00	21.25	18.00	9.00	2.00	1.25	0.313	6.75
	45.00	13.50	7.20	3 GA.	17.50	14.42	22.00	3 GA.	29.00	24.00	2.00	2.00	12.00	1.75	48.00	22.25	19.00	9.50	2.25	1.25	0.313	8.00
	50.00	14.50	7.50	3 GA.	17.00	13.92	22.00	0 GA.	29.00	24.00	2.00	2.00	12.00	1.75	48.00	22.75	19.50	9.75	2.25	1.25	0.313	8.50
	55.00	16.00	8.30	3 GA.	18.00	14.92	22.00	0 GA.	31.00	26.00	2.00	2.25	12.00	2.00	48.00	23.75	20.00	10.00	2.25	1.25	0.313	8.75
	60.00	16.00	8.00	0 GA.	19.50	16.42	22.00	0 GA.	31.00	26.00	2.00	2.25	14.00	2.00	48.00	25.75	22.00	11.00	2.50	1.50	0.313	7.50



**massDOT**  
Highway Division  
STANDARD DRAWINGS  
OVERHEAD SIGNAL STRUCTURE & FOUNDATION  
MAST ARM DETAILS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS

DECEMBER, 2015

SHEET 4 OF 7 SHEETS



**Environmental Partners**  
A partnership for engineering solutions. GROUP

Scale	N/A
Date	AUGUST 2019
Job No.	R326-1605.00
Designed by	BLH
Drawn by	AMT
Checked by	JDF
Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TRAFFIC SIGNAL MAST ARM DETAILS - 02

Sheet No.

50

AS NOTED



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet18\_Mast Arm Standard Details.dwg Plot Date: Aug 02 2019 5:52pm

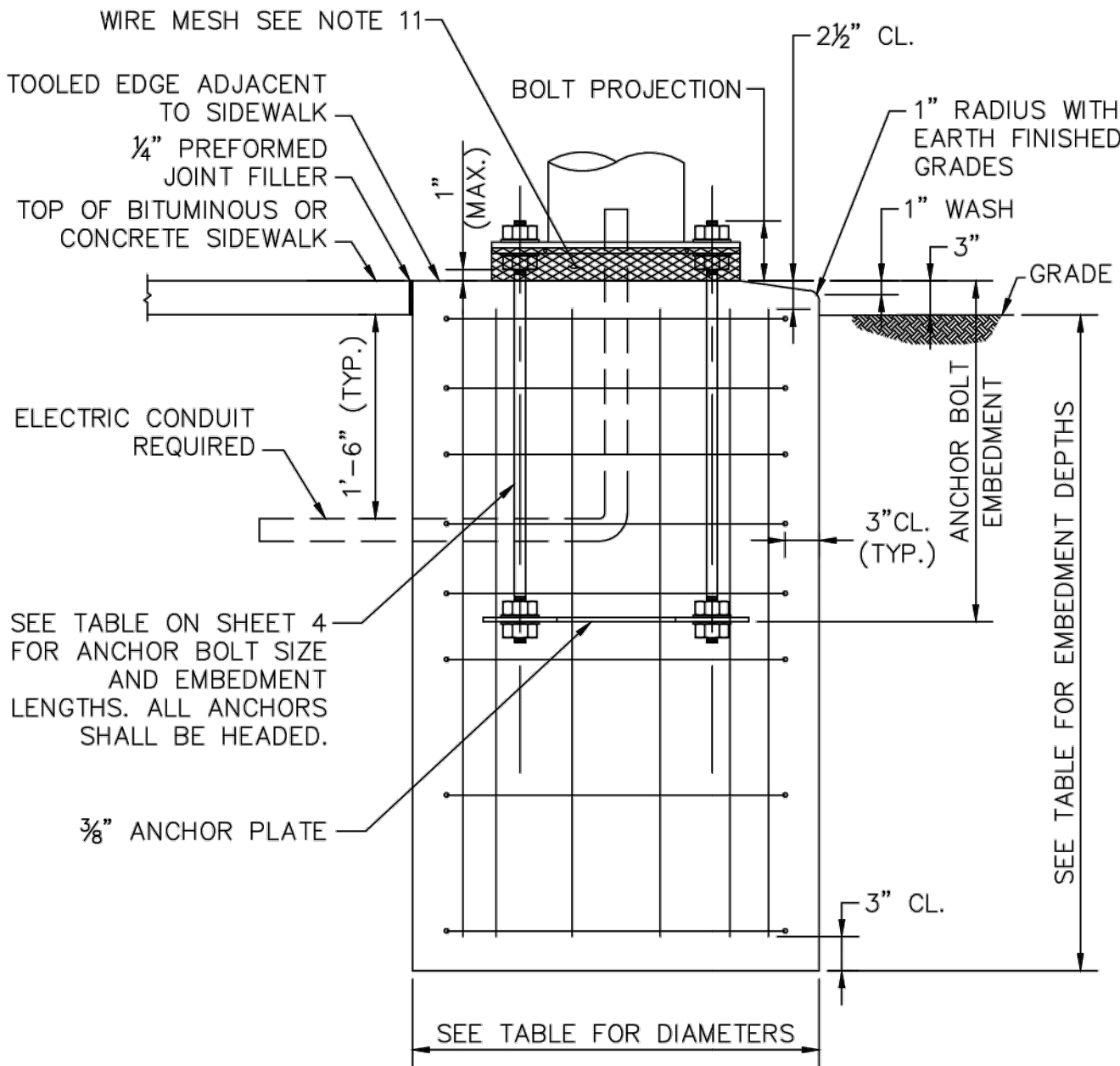
PIER FOUNDATIONS FOR 110 MPH WIND SPEED ZONE																				
SOIL TYPE	15' & 20' MAST ARMS				25' & 30' MAST ARMS				35' & 40' MAST ARMS				45' & 50' MAST ARMS				55' & 60' MAST ARMS			
	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS
DRY SAND (LOOSE)	3'-6"	8'-6"	18-#8	#5 @ 12"	3'-6"	9'-0"	18-#8	#5 @ 12"	3'-6"	11'-6"	18-#8	#5 @ 9"	4'-0"	12'-0"	18-#9	#5 @ 9"	4'-6"	13'-0"	18-#10	#5 @ 6"
DRY SAND (DENSE)	3'-6"	7'-6"	18-#8	#5 @ 12"	3'-6"	7'-6"	18-#8	#5 @ 12"	3'-6"	8'-6"	18-#8	#5 @ 9"	4'-0"	9'-0"	18-#9	#5 @ 9"	4'-6"	9'-6"	18-#10	#5 @ 6"
WET SAND (LOOSE)	3'-6"	9'-6"	18-#8	#5 @ 12"	3'-6"	11'-6"	18-#8	#5 @ 12"	3'-6"	14'-6"	18-#8	#5 @ 9"	4'-0"	15'-6"	18-#9	#5 @ 9"	4'-6"	16'-6"	18-#10	#5 @ 6"
WET SAND (DENSE)	3'-6"	8'-6"	18-#8	#5 @ 12"	3'-6"	9'-0"	18-#8	#5 @ 12"	3'-6"	10'-6"	18-#8	#5 @ 9"	4'-0"	11'-6"	18-#9	#5 @ 9"	4'-6"	12'-0"	18-#10	#5 @ 6"
CLAY (SOFT TO MEDIUM STIFF)	3'-6"	12'-0"	18-#8	#5 @ 12"	3'-6"	12'-0"	18-#8	#5 @ 12"	3'-6"	13'-0"	18-#8	#5 @ 9"	4'-0"	14'-0"	18-#9	#5 @ 9"	4'-6"	15'-6"	18-#10	#5 @ 6"
CLAY (STIFF)	3'-6"	10'-6"	18-#8	#5 @ 12"	3'-6"	10'-6"	18-#8	#5 @ 12"	3'-6"	11'-0"	18-#8	#5 @ 9"	4'-0"	12'-0"	18-#9	#5 @ 9"	4'-6"	13'-6"	18-#10	#5 @ 6"

PIER FOUNDATIONS FOR 130 MPH WIND SPEED ZONE																				
SOIL TYPE	15' & 20' MAST ARMS				25' & 30' MAST ARMS				35' & 40' MAST ARMS				45' & 50' MAST ARMS				55' & 60' MAST ARMS			
	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS	DIAMETER	DEPTH	VERT. BARS	TIE BARS
DRY SAND (LOOSE)	3'-6"	10'-0"	18-#8	#5 @ 12"	3'-6"	10'-6"	18-#8	#5 @ 12"	3'-6"	13'-6"	18-#8	#5 @ 8"	4'-0"	14'-6"	18-#9	#5 @ 6"	4'-6"	15'-6"	18-#10	#5 @ 5"
DRY SAND (DENSE)	3'-6"	8'-6"	18-#8	#5 @ 12"	3'-6"	9'-0"	18-#8	#5 @ 12"	3'-6"	10'-0"	18-#8	#5 @ 8"	4'-0"	11'-0"	18-#9	#5 @ 6"	4'-6"	11'-6"	18-#10	#5 @ 5"
WET SAND (LOOSE)	3'-6"	11'-6"	18-#8	#5 @ 12"	3'-6"	13'-6"	18-#8	#5 @ 12"	3'-6"	17'-0"	18-#8	#5 @ 8"	4'-0"	18'-6"	18-#9	#5 @ 6"	4'-6"	19'-6"	18-#10	#5 @ 5"
WET SAND (DENSE)	3'-6"	10'-0"	18-#8	#5 @ 12"	3'-6"	10'-0"	18-#8	#5 @ 12"	3'-6"	12'-6"	18-#8	#5 @ 8"	4'-0"	13'-6"	18-#9	#5 @ 6"	4'-6"	14'-6"	18-#10	#5 @ 5"
CLAY (SOFT TO MEDIUM STIFF)	3'-6"	12'-6"	18-#8	#5 @ 12"	3'-6"	13'-0"	18-#8	#5 @ 12"	3'-6"	14'-0"	18-#8	#5 @ 8"	4'-0"	16'-0"	18-#9	#5 @ 6"	4'-6"	17'-6"	18-#10	#5 @ 5"
CLAY (STIFF)	3'-6"	11'-0"	18-#8	#5 @ 12"	3'-6"	11'-0"	18-#8	#5 @ 12"	3'-6"	12'-0"	18-#8	#5 @ 8"	4'-0"	13'-0"	18-#9	#5 @ 6"	4'-6"	14'-0"	18-#10	#5 @ 5"

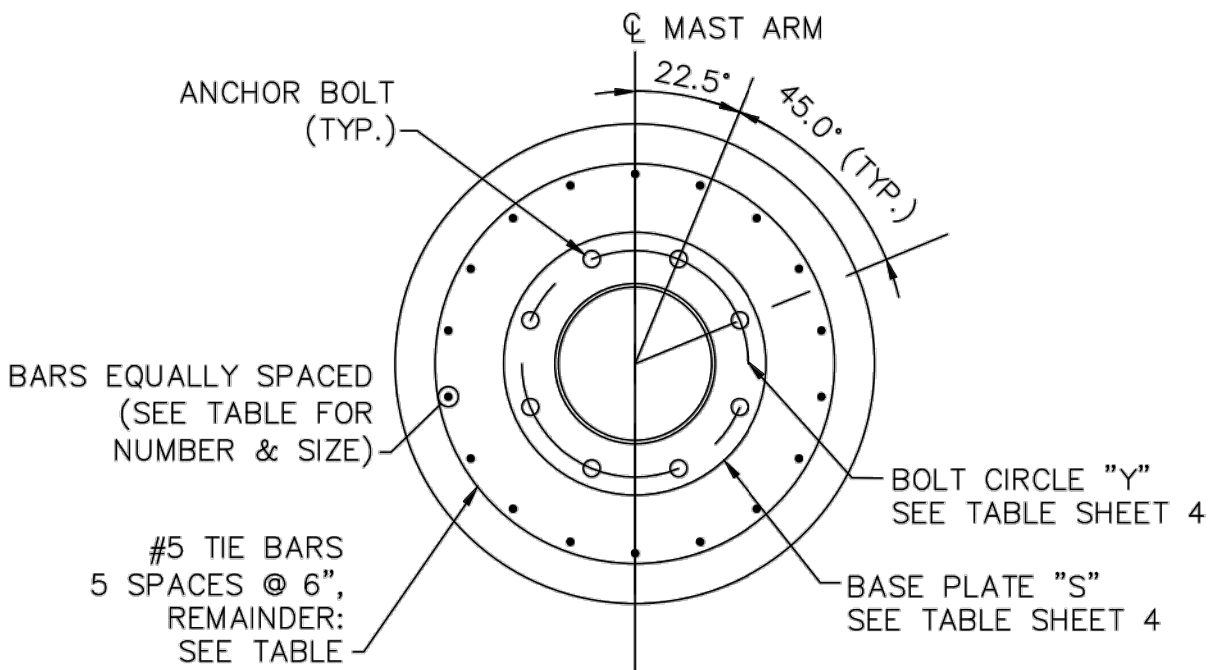
BASIS OF DESIGN			
ALL MAST ARM STRUCTURES AND FOUNDATIONS ARE DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SIXTH EDITION 2013, AND THE FOLLOWING PARAMETERS:			
OVERTURNING DESIGN	FOUNDATIONS ARE SIZED TO RESIST OVERTURNING ACCORDING TO BROMS' DESIGN METHOD WITH A SAFETY FACTOR THAT INCLUDES AN OVERLOAD FACTOR OF 2.0 AND A SOIL UNDERSTRENGTH FACTOR OF 0.7.		
SOIL PARAMETERS	UNIT WEIGHT		FRICITION ANGLE
	LOOSE DRY SAND:		$\gamma$ = 102 PCF
	DENSE DRY SAND:		$\gamma$ = 116 PCF
	LOOSE WET SAND:		$\gamma$ = 125 PCF
	DENSE WET SAND:		$\gamma$ = 135 PCF
	UNIT WEIGHT		SHEAR STRENGTH
DEFLECTION LIMITS	SOFT TO MEDIUM STIFF CLAY:		$S_u$ = 1.0 KSF
	STIFF CLAY:		$S_u$ = 1.9 KSF
MAXIMUM LATERAL DEFLECTION AT TOP OF MAST ARM FOUNDATION SHAFTS:		$\frac{1}{2}$ "	

NOTES:


- FOUNDATIONS SHALL BE 4000 PSI, 565 MASSDOT APPROVED MIX DESIGN.
- FOUNDATIONS SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT STANDARD SPECIFICATIONS ITEM 945 – DRILLED SHAFTS
- REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
- ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
- PROVIDE FOR ELECTRICAL CONDUIT.
- EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO MASSDOT FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6, 7, AND 8.
- THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSDOT. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEIOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
- IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
- SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT, UPON APPROVAL FROM THE MASSDOT. THE STEEL CYLINDERS OR CASINGS SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
- IF LEDGE OR UNSUITABLE SOIL IS ENCOUNTERED (i.e. ONE WHICH DOES NOT APPLY TO THE DESIGN TABLES SHOWN ON THIS SHEET), AN ALTERNATIVE DESIGN SHALL BE PROVIDED BY THE DESIGN ENGINEER. IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AN ALTERNATE DESIGN HAS BEEN PROVIDED BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT. SPECIAL FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH BASIS OF DESIGN TABLE ABOVE.
- A GALVANIZED WIRE MESH SCREEN SHALL BE INSTALLED AT BASE OF POLE. SCREEN SHALL BE PRESS-FORMED OF 3 OR 4 MESH, 21 GAGE OR HEAVIER, STAINLESS STEEL OR HOT DIPPED GALVANIZED WIRE SCREEN OR APPROVED EQUIVALENT. SCREEN SHALL BE SCREWED INTO POLE BASE PLATE, AND SHALL BE FLUSH WITH THE TOP OF THE PIER FOUNDATION.
- SANDY SOILS WITH STANDARD PENETRATION VALUES GREATER THAN 20 BLOWS PER FOOT SHALL BE CLASSIFIED AS DENSE DRY SAND AND DENSE WET SAND. SANDY SOILS WITH STANDARD PENETRATION VALUES RANGING FROM 6 TO 20 BLOWS PER FOOT SHALL BE CLASSIFIED LOOSE DRY SAND AND LOOSE WET SAND. SANDY SOILS WITH FEWER THAN 6 BLOWS PER FOOT SHALL REQUIRE SPECIAL FOUNDATION DESIGNS BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT. SPECIAL FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH BASIS OF DESIGN TABLE ABOVE.
- CLAYS WITH STANDARD PENETRATION VALUES GREATER THAN 6 BLOWS PER FOOT SHALL BE CLASSIFIED AS STIFF CLAY. CLAYS WITH STANDARD PENETRATION VALUES RANGING FROM 2 TO 6 BLOWS PER FOOT SHALL BE CLASSIFIED AS SOFT TO MEDIUM STIFF CLAY. CLAYS WITH FEWER THAN 2 BLOWS PER FOOT SHALL REQUIRE SPECIAL FOUNDATION DESIGNS BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT. SPECIAL FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH BASIS OF DESIGN TABLE ABOVE.
- A SANDY SOIL SHALL ONLY BE CLASSIFIED AS 'DRY' IF THE ENTIRE DRY SAND SHAFT LENGTH SITS ABOVE WET SOILS ACCORDING TO THE BORING LOGS. IF ANY PART OF THE SHAFT LENGTH IS CAST AT OR BELOW THE GROUNDWATER LEVEL, THE SOIL SHALL BE CLASSIFIED AS 'WET'.
- WHERE THE PREDOMINATING SOIL TYPE IS INORGANIC SILT, THE SOIL SHOULD BE TREATED AS CLAY OR WET LOOSE SAND, WHICHEVER LEADS TO A MORE CONSERVATIVE FOUNDATION. INORGANIC SILTS WITH STANDARD PENETRATION N-VALUES LESS THAN 2 BLOWS PER FOOT, ORGANIC SILTS, AND PEAT SHALL REQUIRE SPECIAL FOUNDATION DESIGNS BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT. SPECIAL FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH BASIS OF DESIGN TABLE ABOVE.
- WHERE FILL CONTAINS CLAY OR SILT, IT SHOULD BE TREATED AS SOFT CLAY.
- MAST ARM FOUNDATIONS ARE DESIGNED TO SUPPORT MAST ARMS WITH OR WITHOUT OPTIONAL LUMINAIRE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT FOUNDATION DIAMETER IS AT LEAST 17.5" GREATER THAN BOLT CIRCLE DIAMETER FOR ALL STRUCTURES
- IN ORDER TO CREATE A FLUSH SURFACE, CONTRACTOR SHALL REFER TO THE FINAL ELEVATIONS SHOWN ON THE DESIGN PLANS WHEN INSTALLING FOUNDATIONS IMMEDIATELY ADJACENT TO OR WITHIN A SIDEWALK AREA.



PIER FOUNDATION DETAIL  
NO SCALE



PIER FOUNDATION PLAN  
NO SCALE



STANDARD DRAWINGS

OVERHEAD SIGNAL STRUCTURE & FOUNDATION  
MAST ARM CORED PIER FOUNDATIONS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS

DECEMBER, 2015

SHEET 5 OF 7 SHEETS



**Environmental Partners**  
*A partnership for engineering solutions.*

			Scale	N/A
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	BLH
			Drawn by	AMT
			Checked by	JDF
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TRAFFIC SIGNAL MAST ARM DETAILS - 03

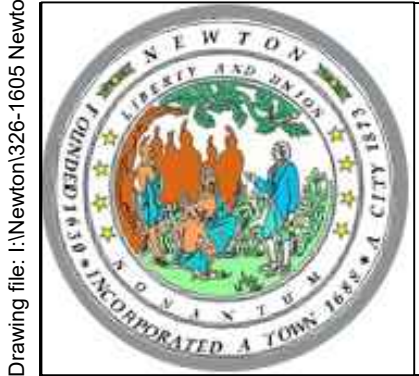
Sheet No.

51

AS NOTED

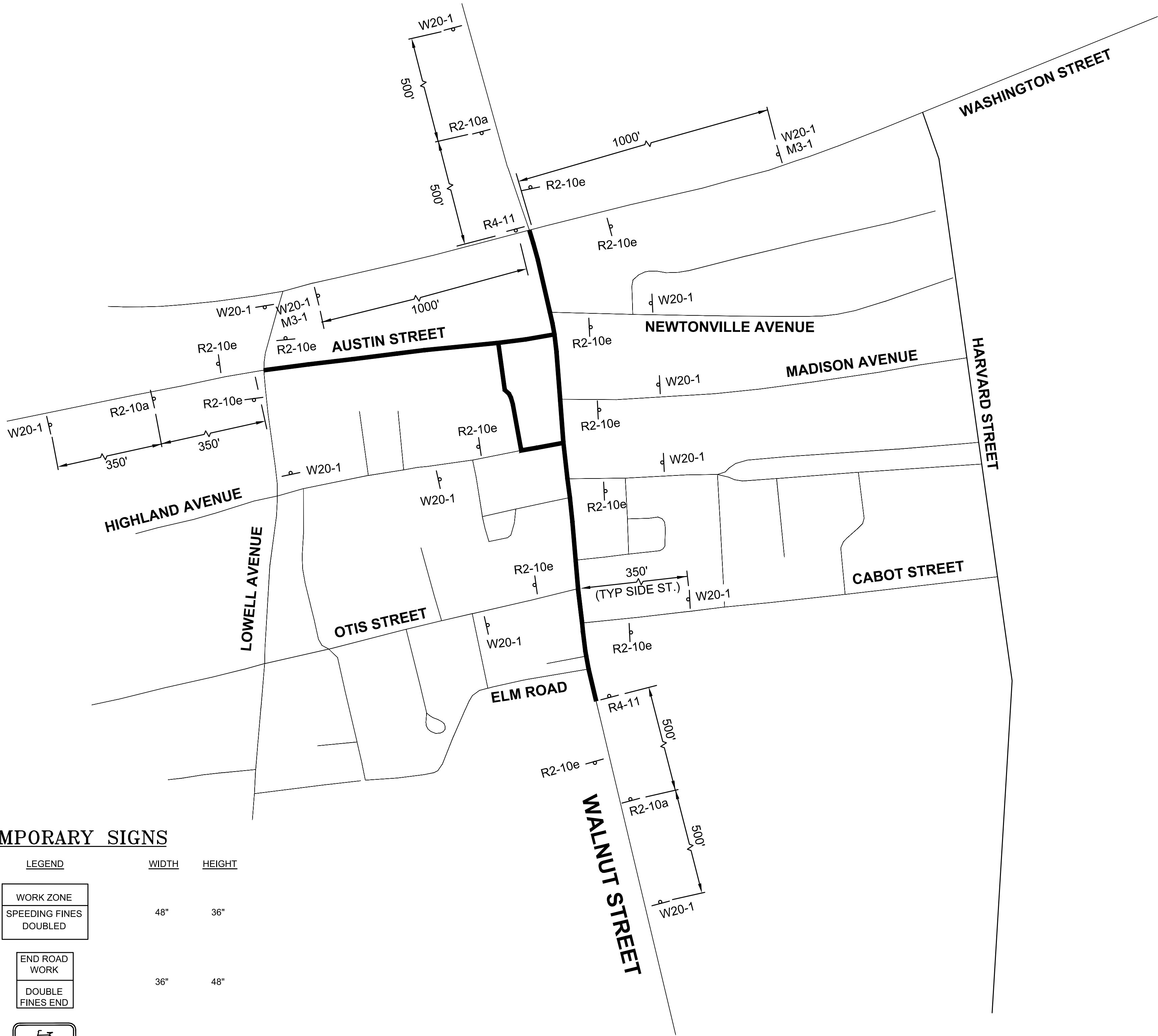


Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet17 - TMP.dwg Plot Date: Aug 02, 2019 5:47pm



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	
			Drawn by	
			Checked by	
MARK	DATE	DESCRIPTION	Approved by	

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING



## GENERAL NOTES

- ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH PART 6 OF THE LATEST EDITION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)
- ALL CHANNELIZING DEVICES SHALL BE SET @ 25' O.C. MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE RESIDENT ENGINEER.
- ALL DRUMS SHALL BE APPROPRIATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORK HOURS, TO MAINTAIN SUCH ACCESS.
- ALL DISTANCE MAY BE ADJUSTED TO FIT FIELD CONDITIONS, AS DIRECTED BY THE CITY. HOWEVER MINIMUM DISTANCES, WHERE INDICATED SHALL BE MAINTAINED.
- THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF NEWTON POLICE, FIRE, AND DEPARTMENT OF PUBLIC WORKS AT LEAST 48 HOURS IN ADVANCE OF LANE CLOSURES.
- A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ALONG WALNUT STREET DURING CONSTRUCTION.
- DETOURS FOR ONE LANE CLOSURES FOR TRAVELWAY SURFACE RESTORATION WORK ONLY (I.E. PAVEMENT COLD PLANE AND RESURFACING). EXCEPTIONS MAY BE MADE FOR MAJOR INTERSECTION WORK, BUT MUST BE APPROVED IN WRITING BY THE RESIDENT ENGINEER AND COORDINATED WITH THE APPROPRIATE LOCAL AUTHORITIES.
- GRADE SEPARATIONS IN EXCESS OF 2 INCHES DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
- EXCAVATION EDGES IN EXCESS OF 4 INCHES DEEP SHALL BE PROTECTED DURING NON-WORKING HOURS BY BACKFILLING WITH A WEDGE OF GRAVEL OR SOIL COMPACTED TO A 4:1 SLOPE.
- REMOVE EXISTING PAVEMENT MARKINGS AND PROVIDE TEMPORARY PAVEMENT MARKINGS AS APPLICABLE TO EACH PHASE OF THE CONSTRUCTION AS DIRECTED BY THE CITY. 10' MINIMUM TRAVEL LANE WIDTHS SHALL BE PROVIDED DURING CONSTRUCTION.
- NONESSENTIAL TEMPORARY CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS.
- THE GENERAL SEQUENCE OF WORK IS DEPENDENT UPON THE REMOVAL AND RELOCATION OF THE EXISTING UTILITY POLES AND WIRES THAT ARE FOUND TO BE IN CONFLICT WITH THE PROPOSED WORK. BY THE UTILITY COMPANIES. THE CONTRACTOR SHALL SCHEDULE THE WORK IN EACH AREA TO COORDINATE WITH THE POLE RELOCATION WORK.
- ADVISORY SPEED PLATES (W13-1) SHALL BE USED IF APPROPRIATE AND AS DIRECTED BY THE ENGINEER.
- SUPPORTS FOR ALL TRAFFIC MANAGEMENT SIGNS SHALL BE 4" X 4" PRESSURE TREATED WOOD POSTS.
- ANY LANE CLOSURE WORK MUST BE PERFORMED BETWEEN THE HOURS OF 9:00 AM - 3:30 PM ONLY. EXCEPTION FOR A SHORT PERIOD OF TIME AS APPROVED BY THE CITY. WORKING BEYOND THESE HOURS OR OVER THE WEEKEND MUST BE APPROVED BY THE CITY.
- CEMENT CONCRETE BARRIERS TO BE USED AS NEEDED AND DIRECTED BY THE CITY.
- ALL TEMPORARY TRAFFIC CONTROL WORK FOR SIDEWALK CLOSURE AND PEDESTRIAN DETOUR SHALL CONFORM TO THE LATEST EDITION OF THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS FIGURE PED-1 TO FIGURE PED-7.

## LEGEND

- |        |                       |
|--------|-----------------------|
|        | CHANNELIZING DEVICE   |
|        | PROPOSED TRAFFIC FLOW |
|        | WORK ZONE             |
|        | TYPE III BARRICADE    |
|        | POLICE DETAIL         |
|        | FLAGGER               |
|        | CONSTRUCTION SIGN     |
| N.T.S. | NOT TO SCALE          |

## ADVANCED SIGNING

N.T.S.

SIGN DESIGNATION	LEGEND	WIDTH	HEIGHT
R2-10a	WORK ZONE SPEEDING FINES DOUBLED	48"	36"
R2-10e	END ROAD WORK DOUBLE FINES END	36"	48"
R4-11	 MAY USE FULL LANE	30"	30"
M3-1	WALNUT STREET	30"	18"
W20-1	ROAD WORK AHEAD	36"	36"







NOTES:

1.

ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2.

ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3.

TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4.

TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5.

SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6.

CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7.

THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
8.

THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9.

DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10.

MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11.

MINIMUM LANE WIDTH IS TO BE 11 FEET (3.3m) UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
12.

ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE

▨

WORK ZONE

▢

▢

WORK VEHICLE
- P/F

POLICE/FLAGGER DETAIL

➡

DIRECTION OF TRAFFIC

▢

▢

TRUCK MOUNTED ATTENUATOR
- ▨

TYPE III BARRICADE

⦿

IMPACT ATTENUATOR

⬅●

TRAFFIC OR PEDESTRIAN SIGNAL
- ▢

CHANGEABLE MESSAGE SIGN
- ▢

▢

MEDIAN BARRIER
- SIGN

▢

▢

MEDIAN BARRIER WITH WARNING LIGHTS

➡

ARROW BOARD

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (EXISTING)	OPEN (TO TRAFFIC)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREEWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,640 (800)

\* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

\*\* DISTANCES ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCP SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

R2-10a, R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

\*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)*
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN.(15 m) 100 FT(30 m) MAX.
DOWNSTREAM TAPER	50 FT MIN.(15 m) 100 FT MAX.(30 m) PER LANE

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH (L) FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

SPEED LIMIT (S)	TAPER LENGTH (L) Meters
60 KM/H OR LESS	$L = \frac{WS^2}{155}$
70 KM/H OR MORE	$L = \frac{WS}{1.6}$

WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 MUTCD LATEST EDITION

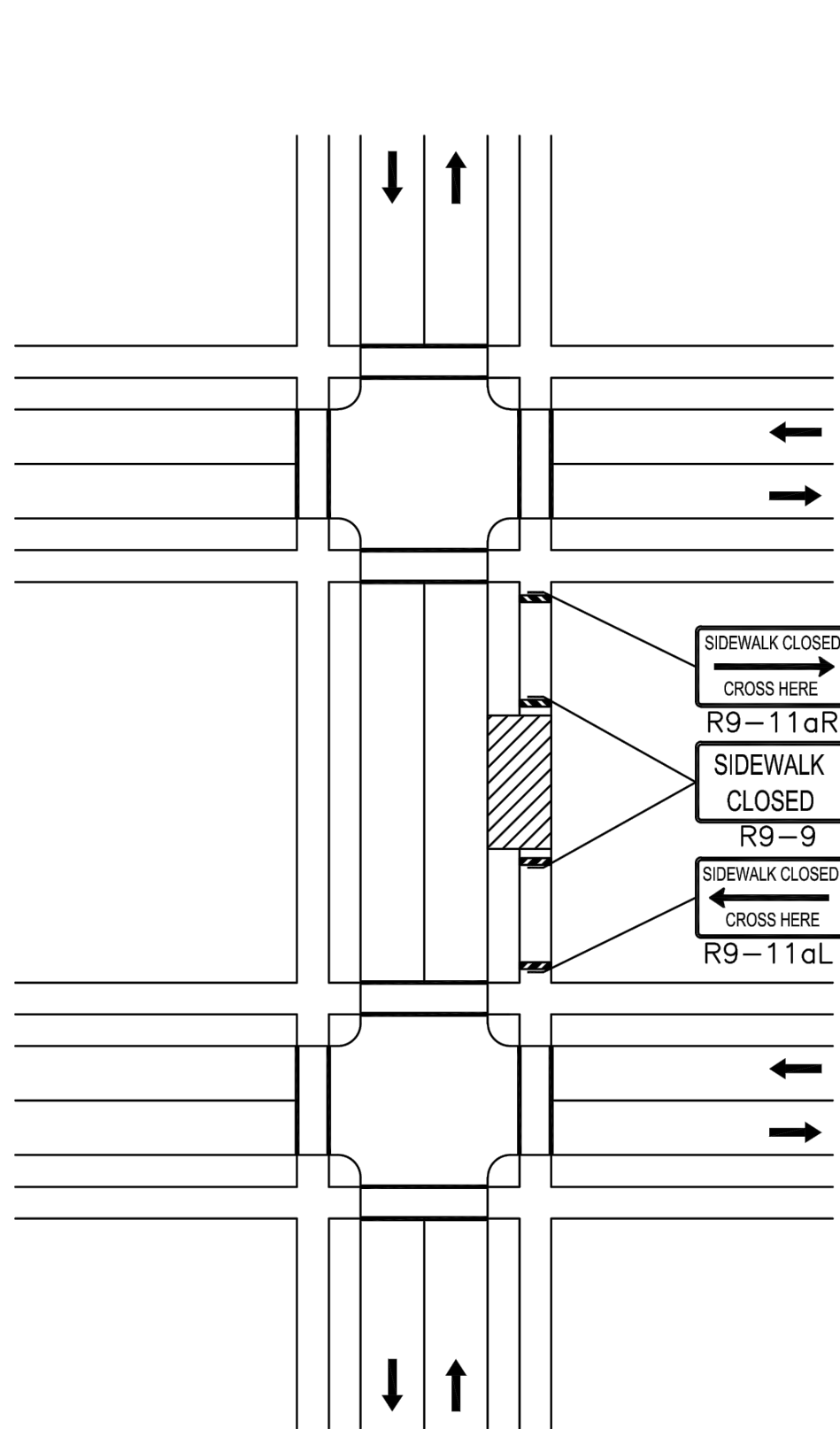
Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet17 - TMP.dwg Plot Date: Aug 02,2019 5:48pm



			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

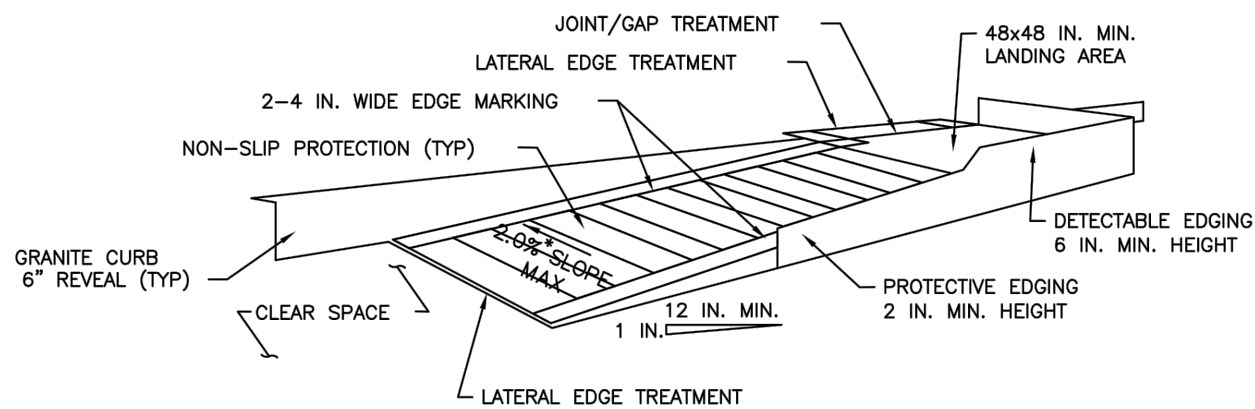
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING



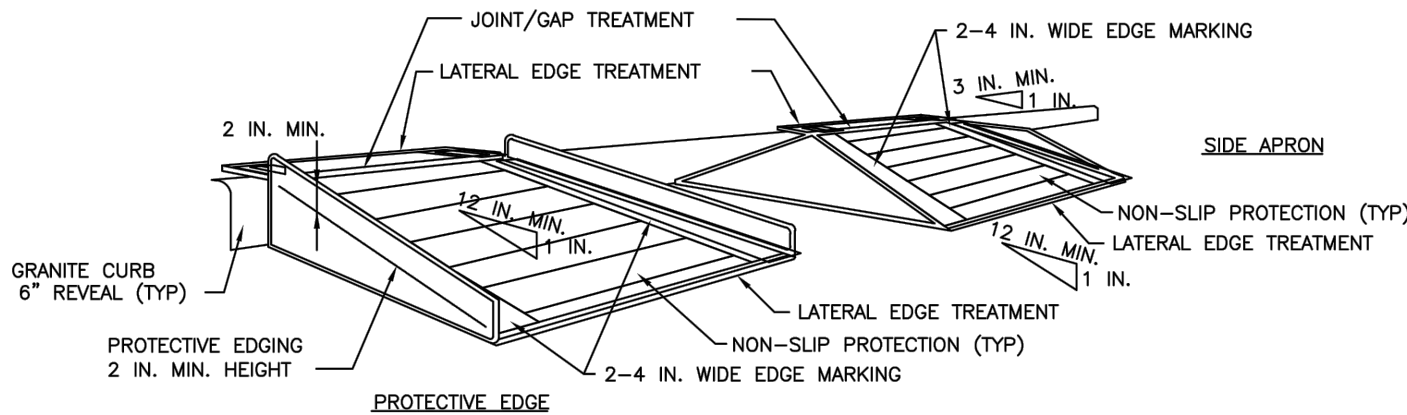


NOTE: IF A MINIMUM WIDTH OF 48" OF SOLID SMOOTH UNOBSTRUCTED SURFACE REMAINS ALONG THE WORK AREA THEN THE DETAIL CAN BE DISREGARDED. DELINEATION OF THE WORK AREA WILL STILL BE REQUIRED. ALL PEDESTRIAN DETOUR ROUTES SHALL BE ADA/MAAB COMPLIANT IN THEIR ENTIRETY.

**TYPICAL SIDEWALK CLOSURE WITHOUT DETOUR**  
N.T.S.

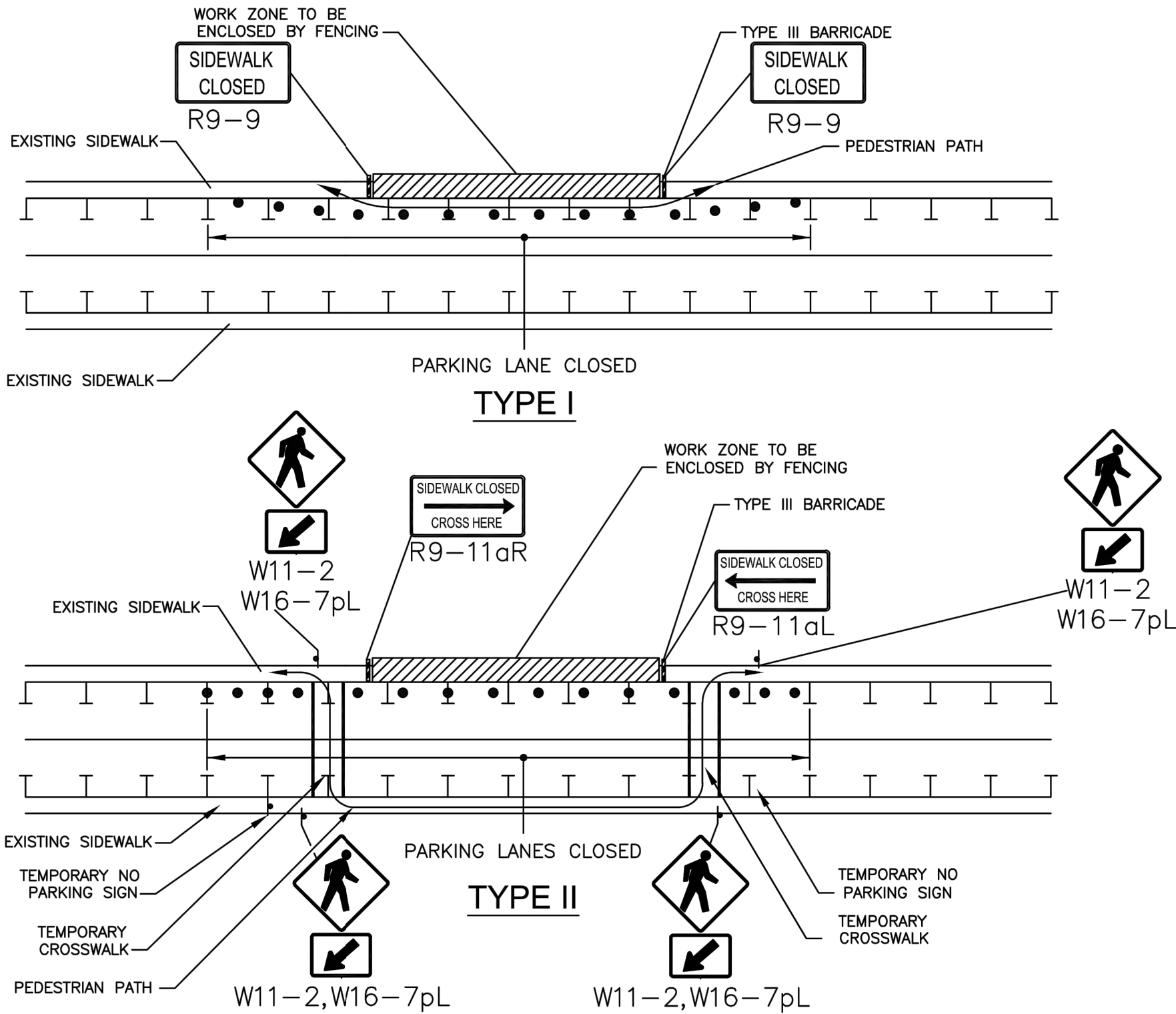


TEMPORARY CURB RAMP-PARALLEL TO CURB



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

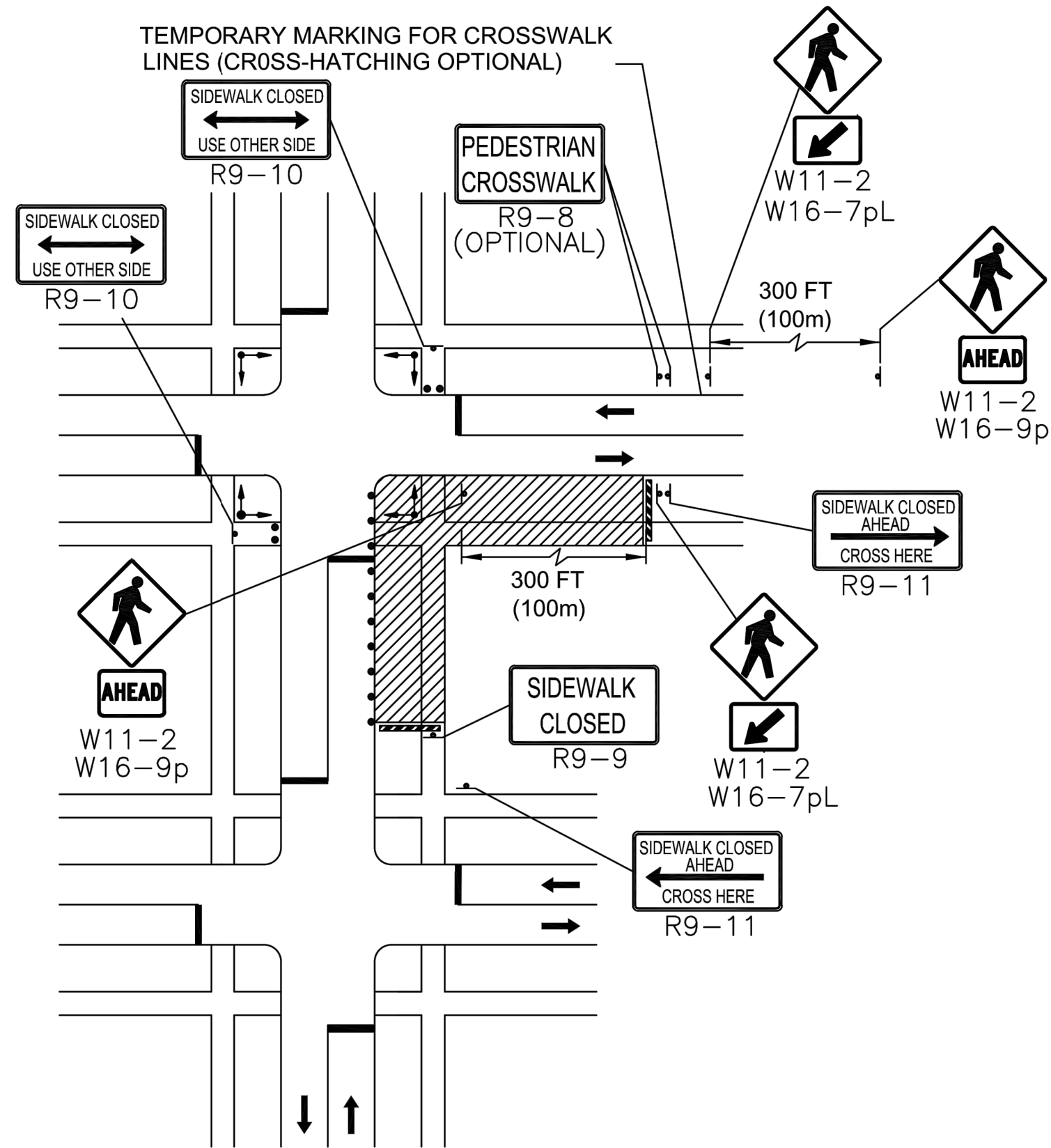
**TEMPORARY CURB RAMP DETAIL**  
N.T.S.



- NOTES
1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
  2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
  3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
  4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
  5. BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
  6. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE. (FOR SHORT TERM SETUPS < 10 HOURS, THIS CONDITION MAY BE WAIVED. A NOTE WOULD NEED TO BE INCLUDED IN THE TTCP THAT STATES HOW THE CONTRACTOR SHOULD ADDRESS THIS ISSUE.)

**TYPICAL PEDESTRIAN BYPASS**  
N.T.S.

- NOTES:
1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
  2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
  3. DETECTABLE EDGE WITH 6 IN. MINIMUM HEIGHT AND CONTRAST COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
  4. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX. CROSS-SLOPE.
  5. CLEAR SPACE OF 48X48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
  6. THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A CONTRASTING COLOR 2 TO 4 IN. WIDE MARKING. THE MARKING IS OPTIONAL WHERE COLOR CONTRASTING EDGING IS USED.
  7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
  8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH
  9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.



NOTE: FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

**TYPICAL PEDESTRIAN DETOUR**  
N.T.S.

Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet17 - TMP.dwg Plot Date: Aug 02, 2019 5:49pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP

			Scale	AS NOTED
			Date	AUGUST 2019
			Job No.	R326-1605.00
			Designed by	JRC
			Drawn by	JRC
			Checked by	BLH
			Approved by	JDF
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

TRAFFIC MANAGEMENT PLAN - 04

Sheet No.

56

AS NOTED



GENERAL NOTES

1. DO NOT SCALE DRAWINGS

- SITE PREPARATION AND DEMOLITION NOTES:

- ## LAYOUT NOTES

- ARCHITECT PRIOR TO CONSTRUCTION.

- ### PLANTING NOTES

- ## MATERIALS

## GRAPHIC SYMBOLS

AREA DRAIN	AREA DRAIN
ADJ	ADJACENT
AGG	AGGREGATE
BC	BOTTOM OF CURB
BETW	BETWEEN
BIT	BITUMINOUS
BBS	BOTTOM OF STEP
BW	BOTTOM OF WALL
BWSC	BOSTON WATER & SEWER
CB	CATCH BASIN
CLF	CHAIN LINK FENCE
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CONC	CONCRETE
CO	CLEAN OUT
CP	CENTER POINT
DET'L	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DWG	DRAWING
EA	EACH
EHH	ELECTRIC HAND HOLE
EJ	EXPANSION JOINT
EQ	EQUAL
EX	EXISTING
EXP	EXPANSION
FFE	FINISH FLOOR ELEVATION
FIN	FINISH
FP	FLAG POLE
GA	GAUGE
GALV	GALVANIZED
GRAN	GRANITE
GSO	GAS SHUT OFF
HH	ELECTRIC HANDHOLE
HT	HEIGHT
HYD	HYDRANT
INACC	INACCESSIBLE
JT	JOINT
LA	LANDSCAPE ARCHITECT
LP	LIGHT POLE
MAT'L	MATERIAL
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
NTS	NOT TO SCALE
NVC	NO VISIBLE CONNECTION
OC	ON CENTER
OD	OUTSIDE DIAMETER
PC	POINT OF CURVATURE
PCS	PIECES
POB	POINT OF BEGINNING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PTD	PAINTED
PVMT	PAVEMENT
REC	RECORD
REINF	REINFORCED
REQ	REQUIRED
SBSS	SAND BASED STRUCTURAL SOIL
SF	SQUARE FEET
SHT	SHEET
SIM	SIMILAR
STL	STEEL
TC	TOP OF CURB
TH	THRESHOLD
TS	TOP OF STEP
TW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
VIF	VERIFY IN FIELD
WG	WATER GATE
WIF	WROUGHT IRON FENCE
WSO	WATER SHUT OFF
WWM	WELDED WIRE MESH



Drawing file: K:\Projects\kmdg 171716 Newtonville\CAD\Newtonville\_GENERAL NOTES.dwg Plot Date: Aug 01, 2019-11:38am



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	KMDG
Drawn by	AA
Checked by	KP
Approved by	KM

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

PROJECT PLANT SCHEDULE







TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
E#	11	Acer rubrum	Red Maple	2.5-3" cal.	BLEND OF 'OCTOBER GLORY' AND 'RED SUNSET'
AA	3	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	4-5' ht. B&B	MULTI-STEM
D#	17	Gleditsia 'Shade Master'	'Shade Master' Honey Locust	3.5-4" cal.	
A#	10	Gymnocladus dioicus 'Stately Manor'	'Stately Manor' Kentucky Coffee Tree	3-3.5" cal.	
--	12	Picea glauca 'Conica'	Dwarf Alberta Spruce	3 gal	FOR MOVABLE PLANTERS
C#	16	Prunus subhirtella 'Autumnalis'	'Autumnalis' Cherry Tree	2.5-3" cal.	
B#	11	Ulmus	Elm	3-3.5" cal.	BLEND OF 'VALLEY FORGE', 'PRINCETON', AND 'ACCOLADE'
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
HI	3	Hamamelis x intermedia 'Arnold Promise'	Arnold Promise Hybrid Witch Hazel	5 gal	
IN	5	Ilex glabra 'Nigra'	Nigra Inkberry	5 gal	
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME		REMARKS
--	144	Ipomoea batatas	Sweet Potato Vine	4" pot	FOR MOVABLE PLANTERS
	350	Pachysandra procumbens	Allegheny Spurge	4" pot	9" O.C.
	350	Vinca minor	Common Periwinkle	4" pot	9" O.C.
BULBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
--	750	Narcissus 'Barrett Browning'	Large Cupped Daffodil	bulb	12" O.C., BLENDED WITH NARCISSUS 'ORANGE PROGRESS'
--	750	Narcissus 'Orange Progress'	Large Cupped Daffodil	bulb	12" O.C., BLENDED WITH NARCISSUS 'BARRETT BROWNING'












- |                                                                                       |           |                                                                                                   |
|---------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------|
|  | <b>A#</b> | TREE TYPE A: GYMNOCLADUS DIOICUS 'STATELY MANOR', 3-3.5" CAL., (TOTAL OF 10)                      |
|  | <b>B#</b> | TREE TYPE B: BLEND OF ULMUS 'VALLEY FORGE', 'PRINCETON', & 'ACCOLADE', 3-3.5" CAL., (TOTAL OF 11) |
|  | <b>C#</b> | TREE TYPE C: PRUNUS SUBHIRTELLA 'AUTUMNALIS', 2.5-3" CAL., (TOTAL OF 16)                          |
|  | <b>D#</b> | TREE TYPE D: GLEDITSIA 'SHADE MASTER', 3.5-4" CAL., (TOTAL OF 17)                                 |
|  | <b>E#</b> | TREE TYPE E: BLEND OF ACER RUBRUM 'OCTOBER GLORY' AND 'RED SUNSET', 2.5-3" CAL., (TOTAL OF 11)    |
|  |           | EXISTING TREE TO REMAIN                                                                           |

## LEGEND

- |  |    |                 |                |                                      |  |     |                |                                                               |
|--|----|-----------------|----------------|--------------------------------------|--|-----|----------------|---------------------------------------------------------------|
|  | P1 | $\frac{6}{67}$  | $\frac{3}{67}$ | C.I.P. CONCRETE PAVEMENT             |  | PL1 | $\frac{4}{68}$ | BULB PLANTING                                                 |
|  | P2 | $\frac{2}{67}$  |                | PERMEABLE UNIT PAVERS ON SBSS        |  | PL2 |                | PERENNIALS IN MOVABLE PLANTERS                                |
|  | P3 | $\frac{5}{67}$  |                | UNIT PAVERS                          |  | T1  | $\frac{1}{68}$ | TREE PLANTING IN PERMEABLE UNIT PAVERS                        |
|  | P4 | $\frac{11}{67}$ |                | PERMEABLE UNIT PAVERS ON GRADE       |  | T2  | $\frac{3}{68}$ | $\frac{6}{68}$ TREE PLANTING IN OPEN TREE PLANTING            |
|  | P5 | $\frac{1}{66}$  | $\frac{2}{66}$ | COLORLED TEXTURED DECORATIVE SURFACE |  | T3  | $\frac{3}{68}$ | $\frac{5}{68}$ TREE PLANTING IN LAWN                          |
|  |    |                 |                |                                      |  | F6  | $\frac{5}{69}$ | TRASH AND RECYCLING RECEPTACLE FOOTING LOCATIONS (TOTAL OF 7) |

-  PEDESTRIAN LIGHT FIXTURE. SEE 10/67 FOR HAND HOLE LOC. SEE ELEC. FOR POLE & FIXTURE LOC.  
 ROADWAY LIGHT FIXTURE. SEE 10/67 FOR HAND HOLE LOC. SEE ELEC. FOR POLE & FIXTURE LOC.  
 LIMIT OF WORK



			Scale	AS NOTED
			Date	JULY 2019
			Job No.	R326-1605.00
			Designed by	KMDG
			Drawn by	AA
			Checked by	KP
MARK	DATE	DESCRIPTION	Approved by	KM

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

# REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS

LANDSCAPE PLAN - 2

Sheet No.

60



61









THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

LANDSCAPE ENLARGEMENT PLAN - 1

63







# 1 LANDSCAPE ENLARGEMENT PLAN

SCALE: 1" = 10'-0"



- ## LEGEND

- |    |                |                                                                    |
|----|----------------|--------------------------------------------------------------------|
| F1 | $\frac{1}{69}$ | PARK BENCH TYPE 'A' - SINGLE BENCH<br>(TOTAL OF 17)                |
| F2 | $\frac{2}{69}$ | PARK BENCH TYPE 'B' - FIXED BISTRO<br>CHAIR (TOTAL OF 8)           |
| F3 | $\frac{4}{69}$ | PARK BENCH TYPE 'C' - DOUBLE BENCH<br>(TOTAL OF 6)                 |
| F4 | $\frac{6}{69}$ | MOVABLE PLANTER (TOTAL OF 12)                                      |
| F5 | $\frac{3}{69}$ | BIKE RACK (TOTAL OF 9)                                             |
| F6 | $\frac{5}{69}$ | RELOCATED BIG BELLY TRASH AND<br>RECYCLING RECEPTACLE (TOTAL OF 7) |

- # REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS

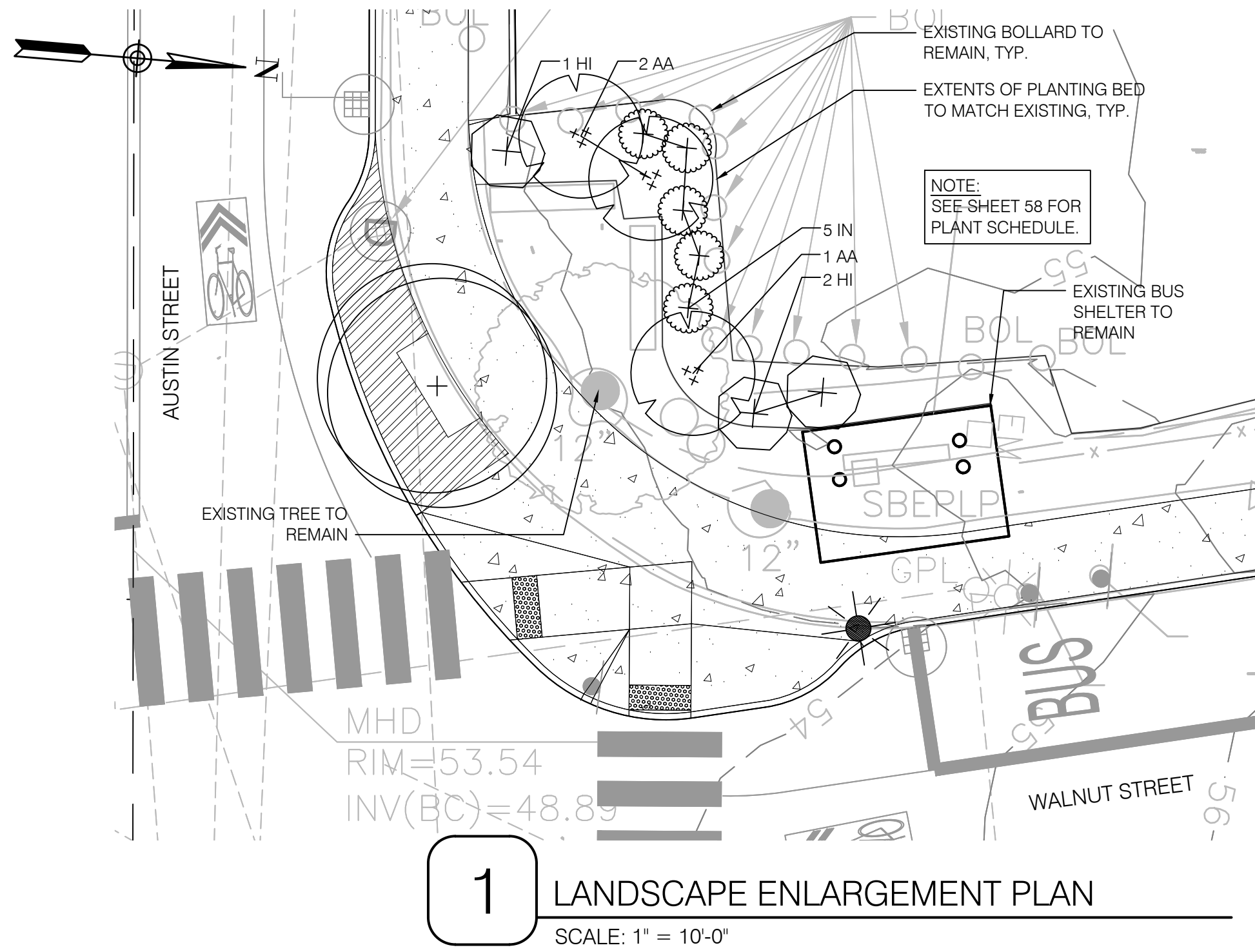
LANDSCAPE ENLARGEMENT PLAN - 2

Sheet No.

64

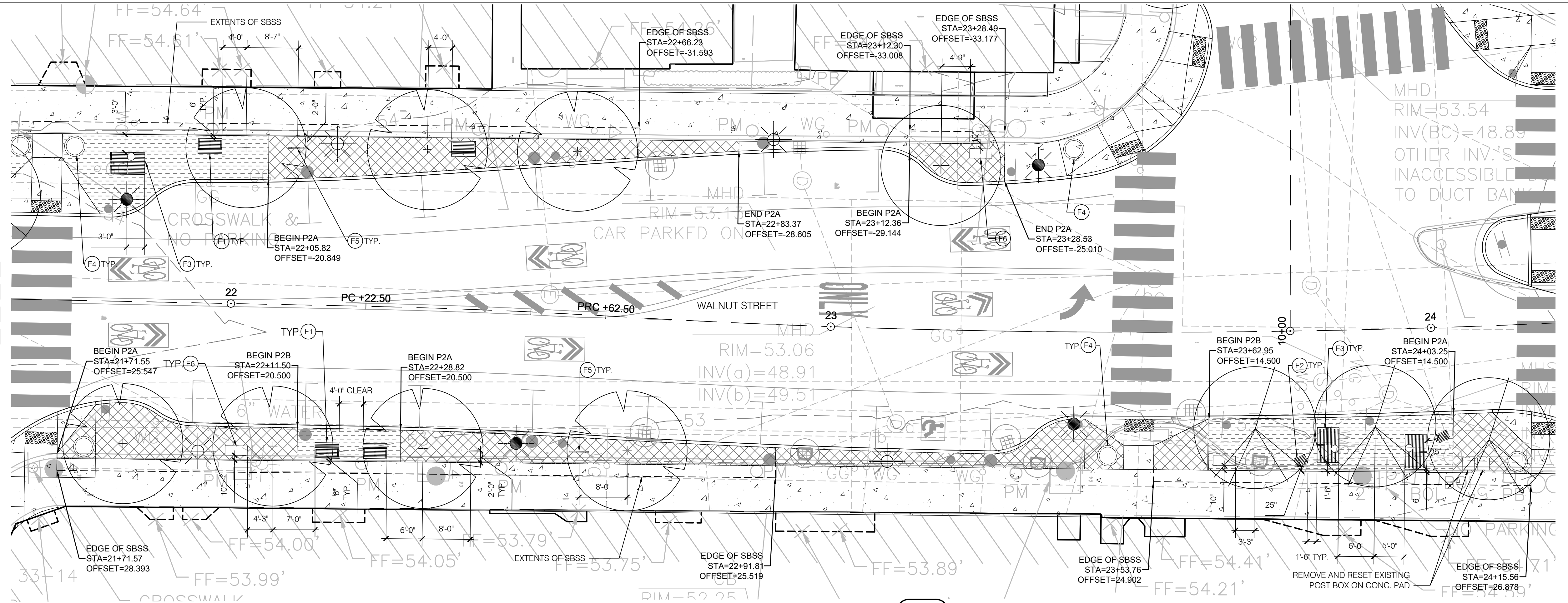


Drawing file: K:\Projects\kmdg\771716 Newtonville\CAD\Newtonville\_LANDSCAPE\_ENLARGEMENT\_SHEETS.dwg Plot Date: Aug 01 2018-11:38am

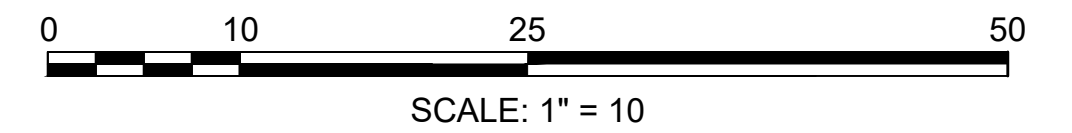


1 LANDSCAPE ENLARGEMENT PLAN  
SCALE: 1" = 10'-0"

CONTINUED  
ON SHEET 64



2 LANDSCAPE ENLARGEMENT PLAN  
SCALE: 1" = 10'-0"

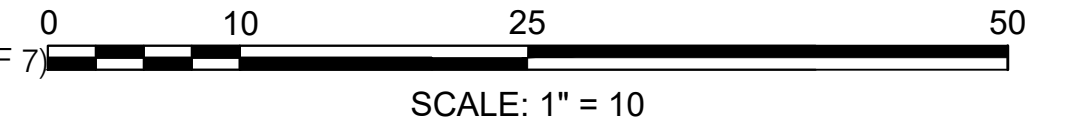


## PLANTING LEGEND

- (A#) TREE TYPE A: GYMNOCLADUS DIOICUS 'STATELY MANOR', 3-3.5" CAL., (TOTAL OF 10)
- (B#) TREE TYPE B: BLEND OF ULMUS 'VALLEY FORGE', 'PRINCETON', & 'ACCOLADE', 3-3.5" CAL., (TOTAL OF 11)
- (C#) TREE TYPE C: PRUNUS SUBHIRTTELLA 'AUTUMNALIS', 2.5-3" CAL., (TOTAL OF 16)
- (D#) TREE TYPE D: GLEDITSIA 'SHADE MASTER', 3.5-4" CAL., (TOTAL OF 17)
- (E#) TREE TYPE E: BLEND OF ACER RUBRUM 'OCTOBER GLORY' AND 'RED SUNSET', 2.5-3" CAL., (TOTAL OF 11)
- (.) EXISTING TREE TO REMAIN

## LEGEND

- (P1) (6/67) (3/67) C.I.P. CONCRETE PAVEMENT
- (P2A) (7/67) PAVER LAYOUT P2A
- (P2B) (8/67) PAVER LAYOUT P2B
- (P3) (9/67) PAVER LAYOUT P3
- (P4) (1/66) (2/66) COLORED TEXTURIZED DECORATIVE SURFACE
- (F1) (1/69) PARK BENCH TYPE 'A' - SINGLE BENCH (TOTAL OF 17)
- (F2) (2/69) PARK BENCH TYPE 'B' - FIXED BISTRO CHAIR (TOTAL OF 8)
- (F3) (4/69) PARK BENCH TYPE 'C' - DOUBLE BENCH (TOTAL OF 6)
- (F4) (6/69) MOVABLE PLANTER (TOTAL OF 12)
- (F5) (3/69) BIKE RACK (TOTAL OF 9)
- (F6) (5/69) RELOCATED BIG BELLY TRASH AND RECYCLING RECEPTACLE (TOTAL OF 7)
- (\*) PEDESTRIAN LIGHT FIXTURE. SEE 10/67 FOR HAND HOLE LOC. SEE ELEC. FOR POLE & FIXTURE LOC.
- (\*) ROADWAY LIGHT FIXTURE. SEE 10/67 FOR HAND HOLE LOC. SEE ELEC. FOR POLE & FIXTURE LOC.
- (---) LIMIT OF WORK



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	KMDG
Drawn by	AA
Checked by	KP
Approved by	KM

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

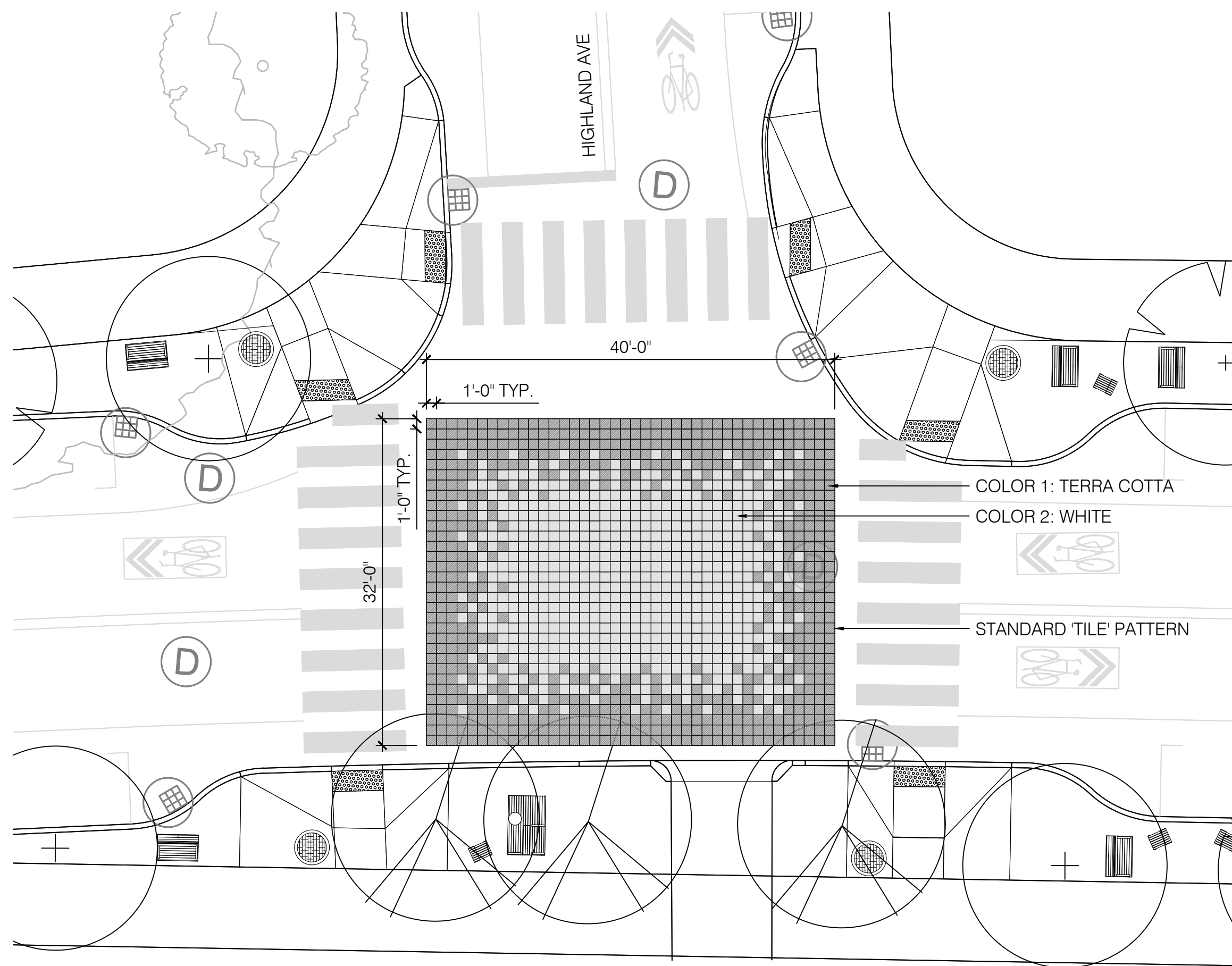
LANDSCAPE ENLARGEMENT PLAN - 3

Sheet No.

65



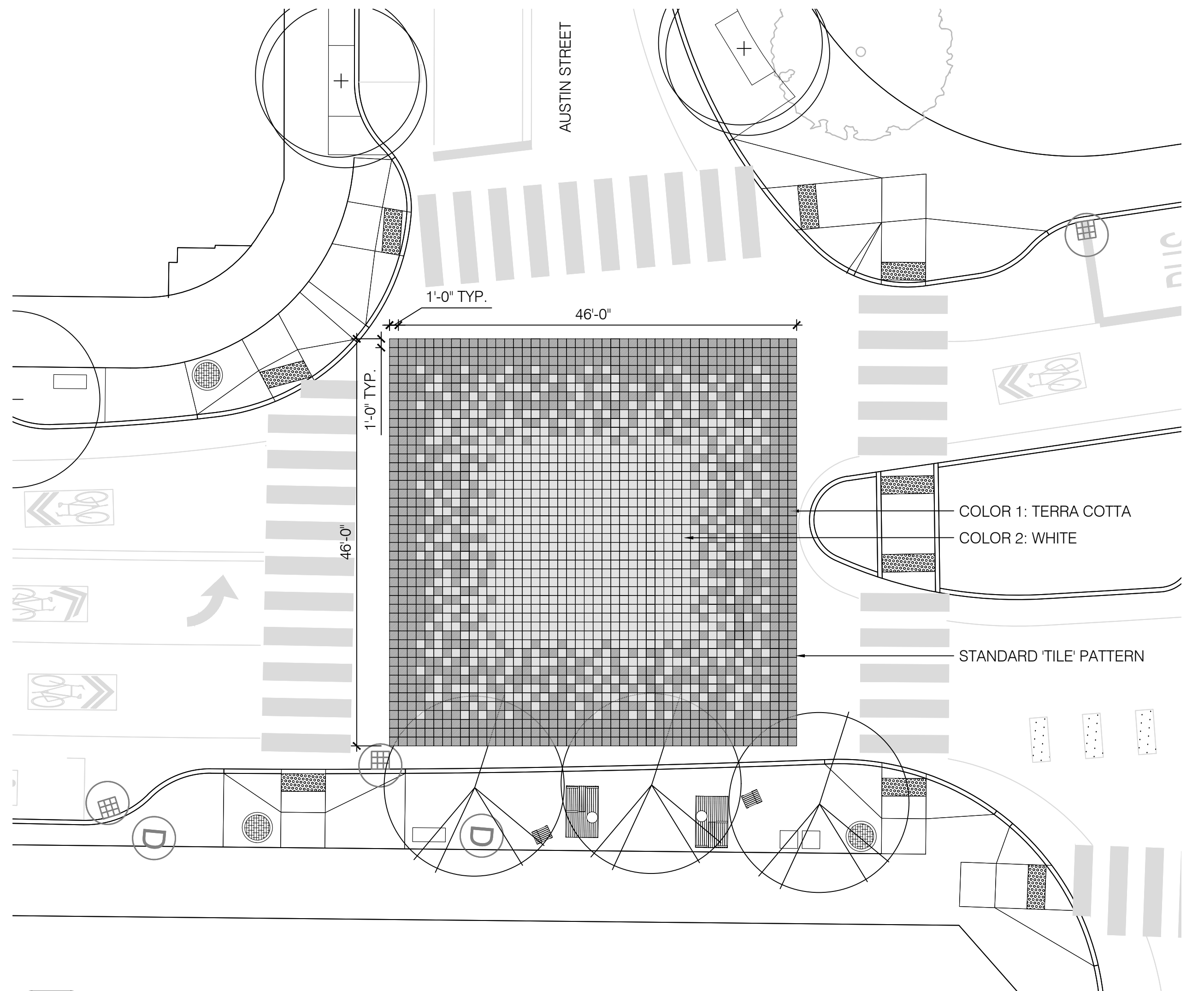
Drawing file: K:\Projects\kmdg\711716 Newtonville\CAD\Newtonville\_LANDSCAPE DETAILS.dwg Plot Date: Aug 01, 2019 11:39am



2

COLORED TEXTURIZED DECORATIVE SURFACE - HIGHLAND AVE

SCALE: 1" = 10'-0"



1

COLORED TEXTURIZED DECORATIVE SURFACE - AUSTIN STREET

SCALE: 1" = 10'-0"



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	KMDG
Drawn by	AA
Checked by	KP
Approved by	KM

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

LANDSCAPE DETAILS - 1

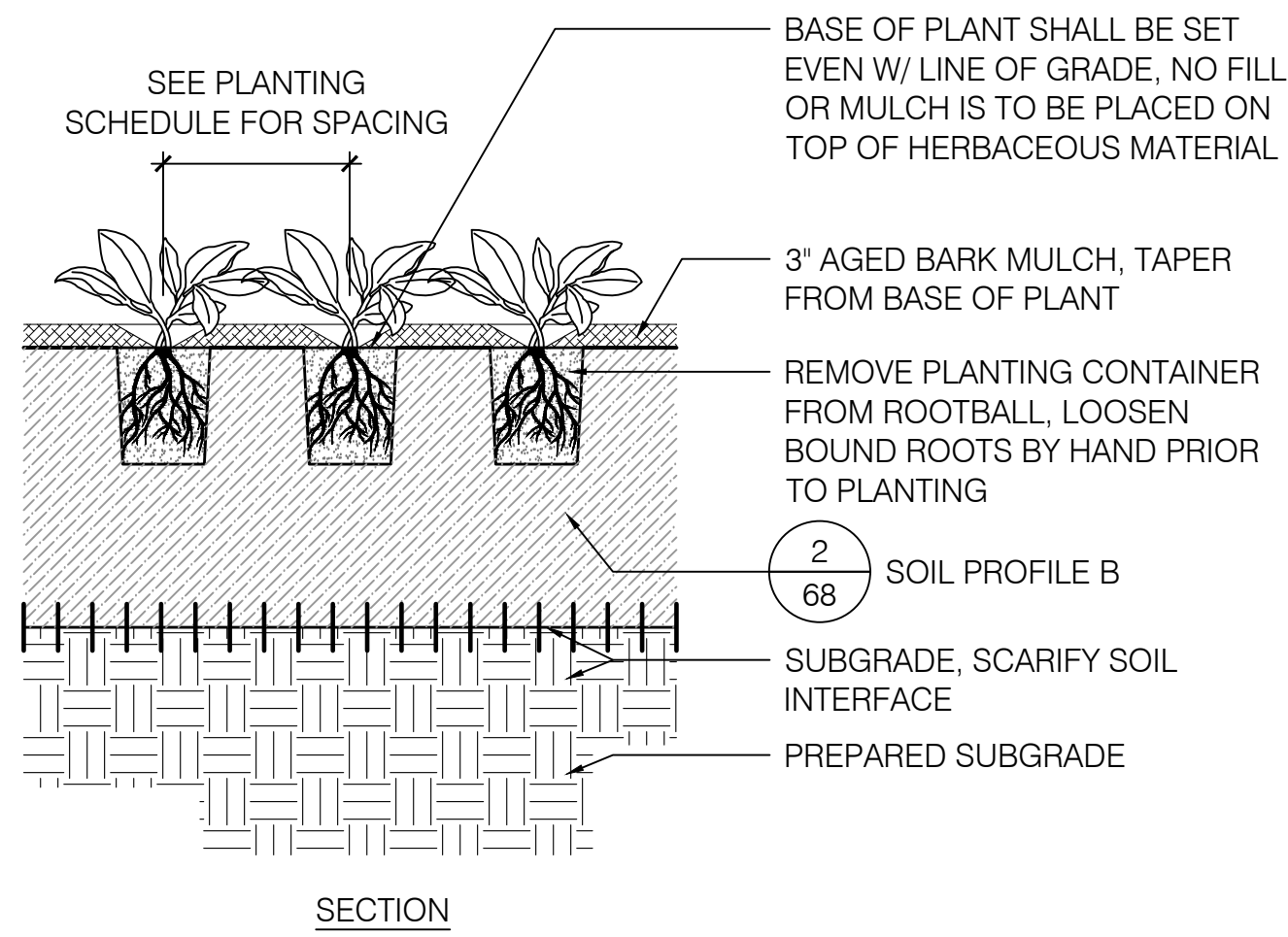
Sheet No.

66



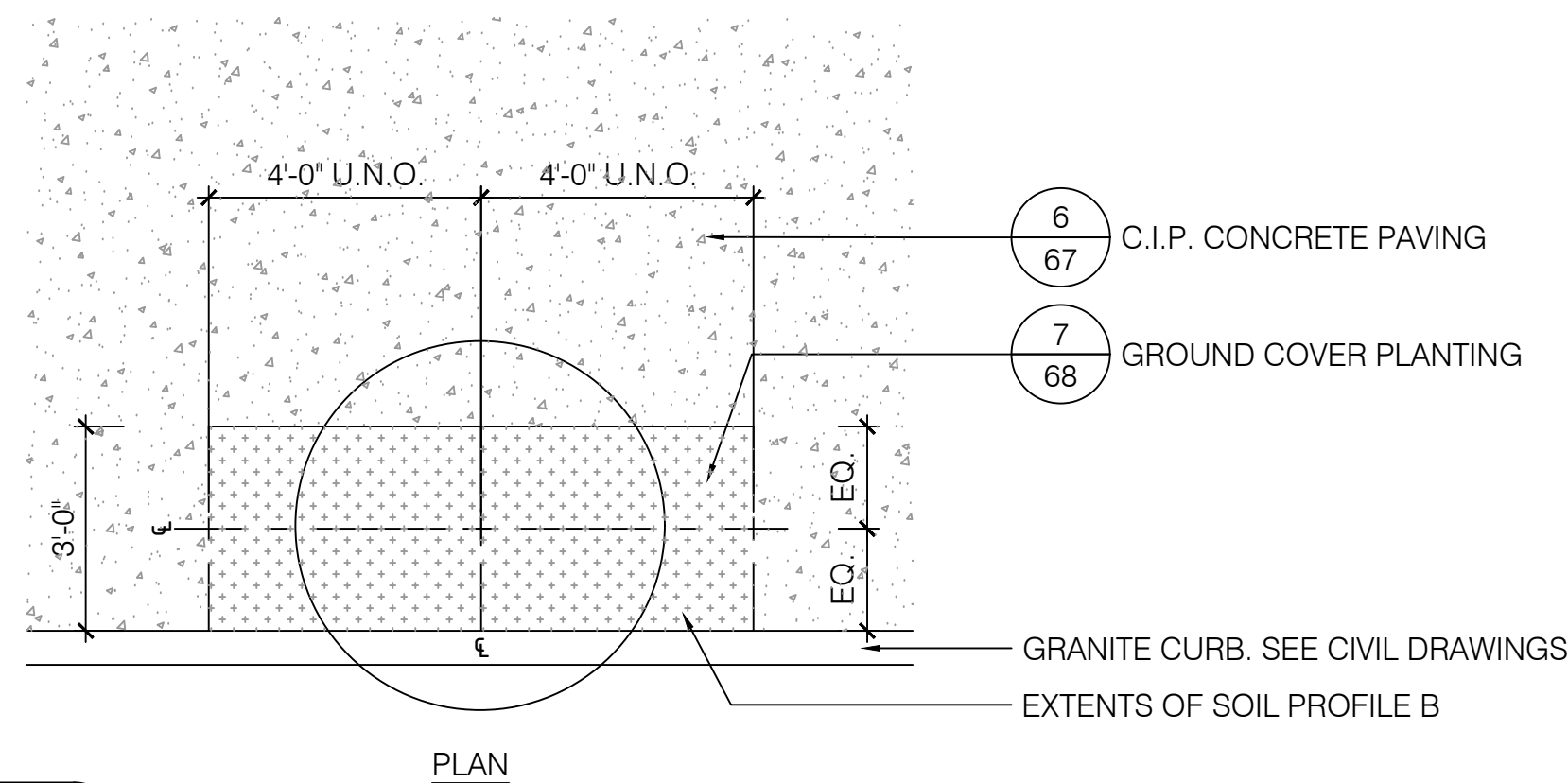






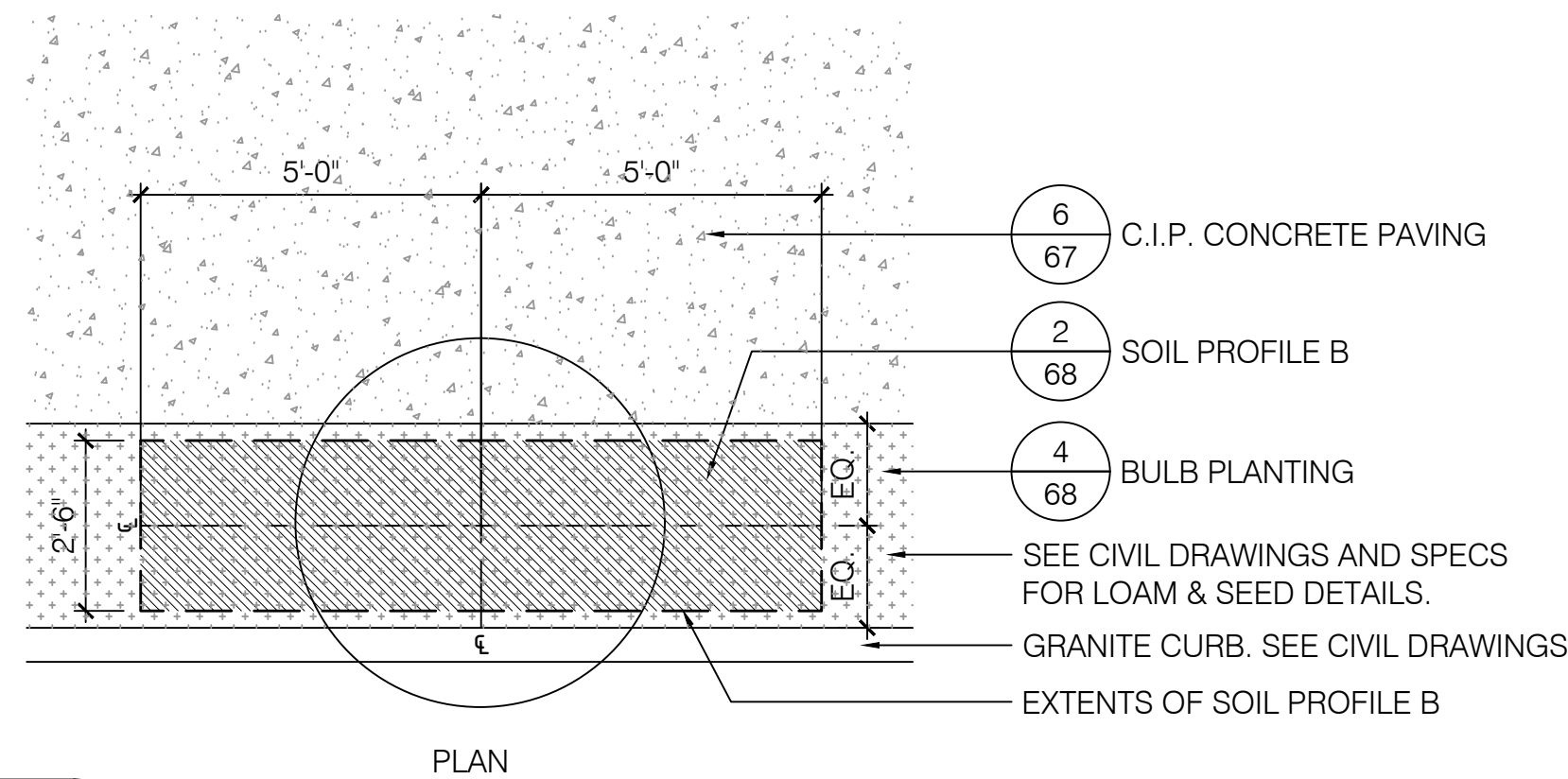
## 7 GROUND COVER PLANTING

SCALE: 1 1/2" = 1'-0"



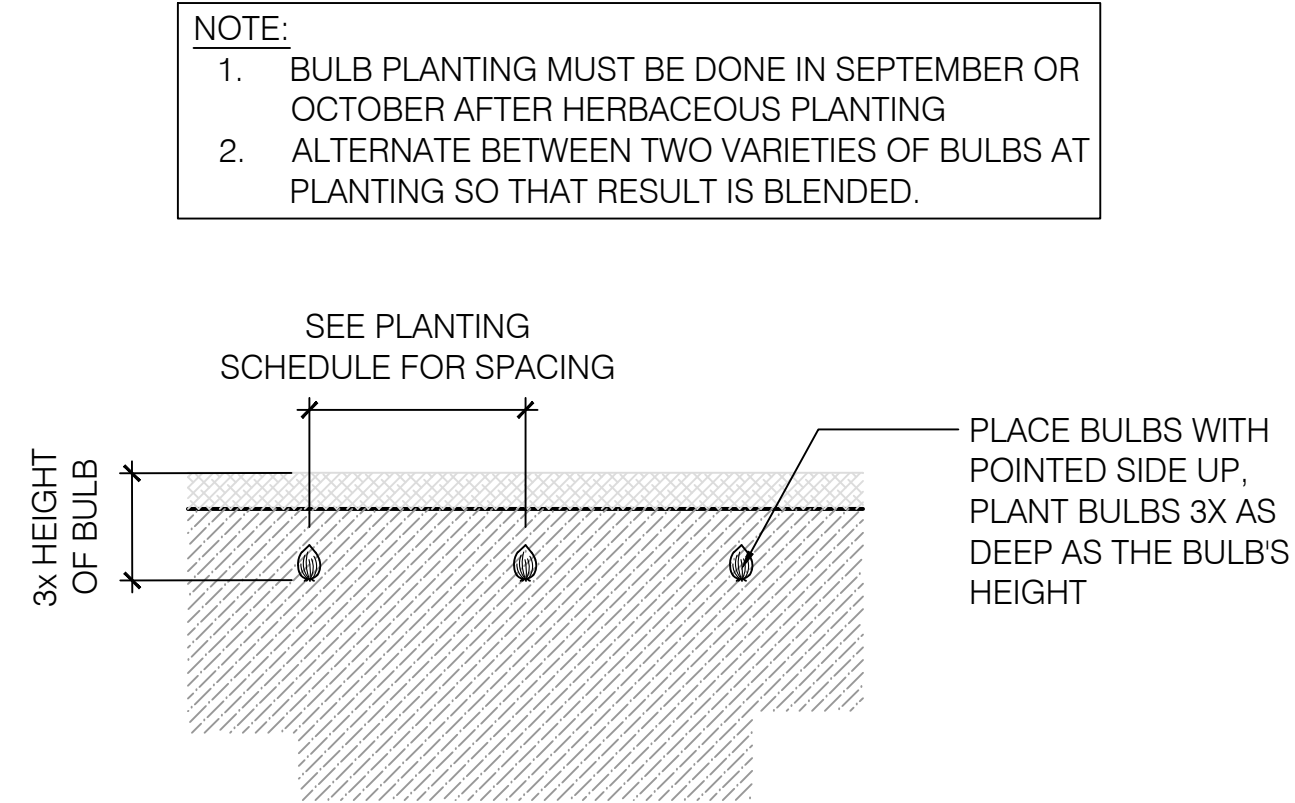
## 6 TREE PLANTING IN OPEN TREE PIT

SCALE: 3/8" = 1'-0"



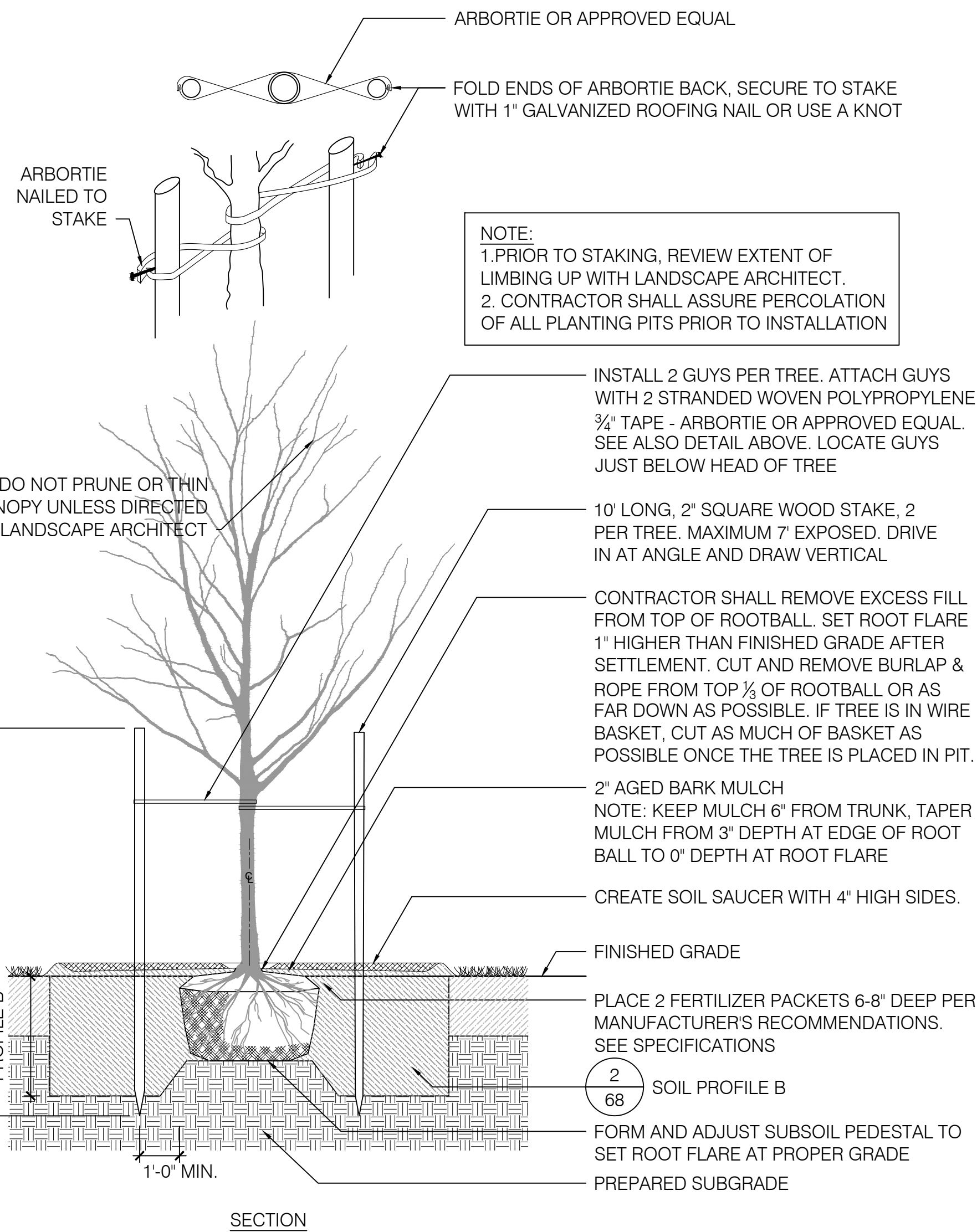
## 5 TREE PLANTING IN TREE LAWN

SCALE: 3/8" = 1'-0"



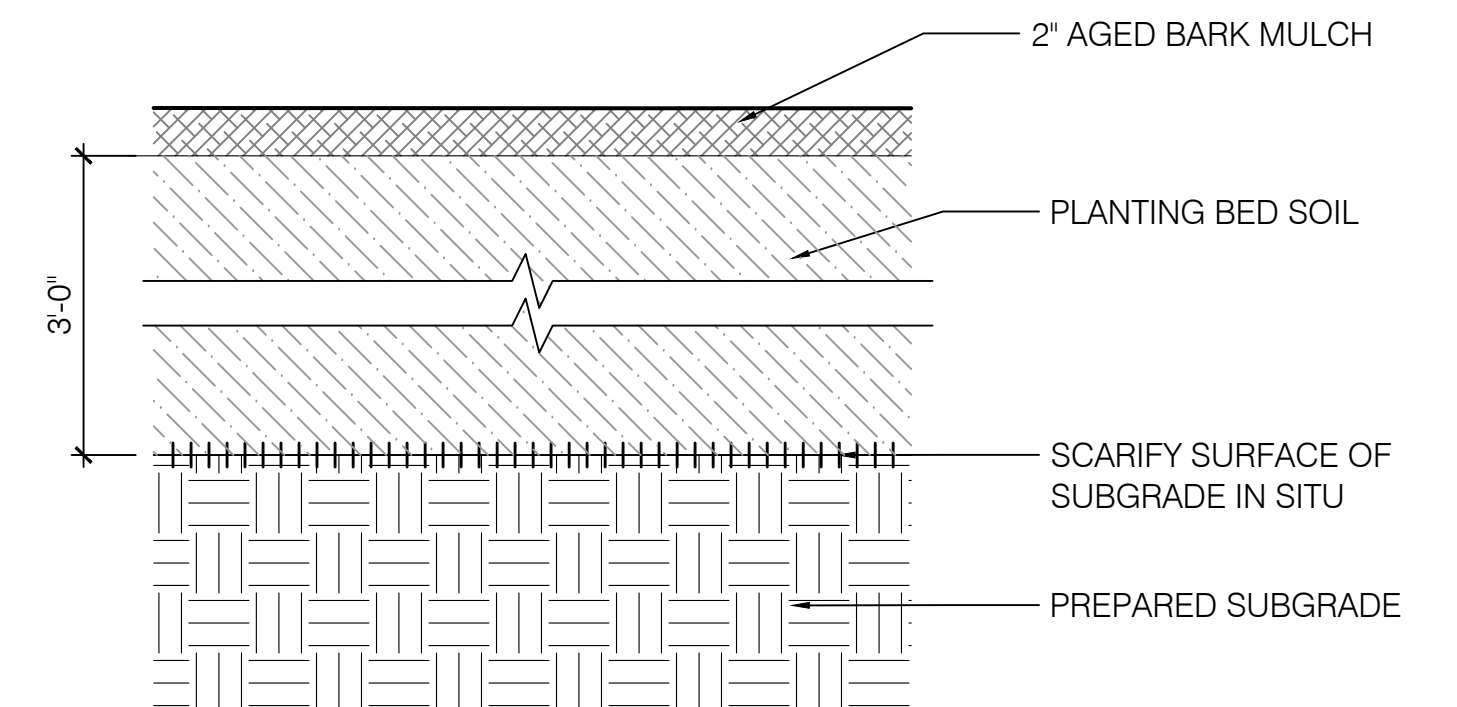
## 4 BULB PLANTING

SCALE: 1 1/2" = 1'-0"



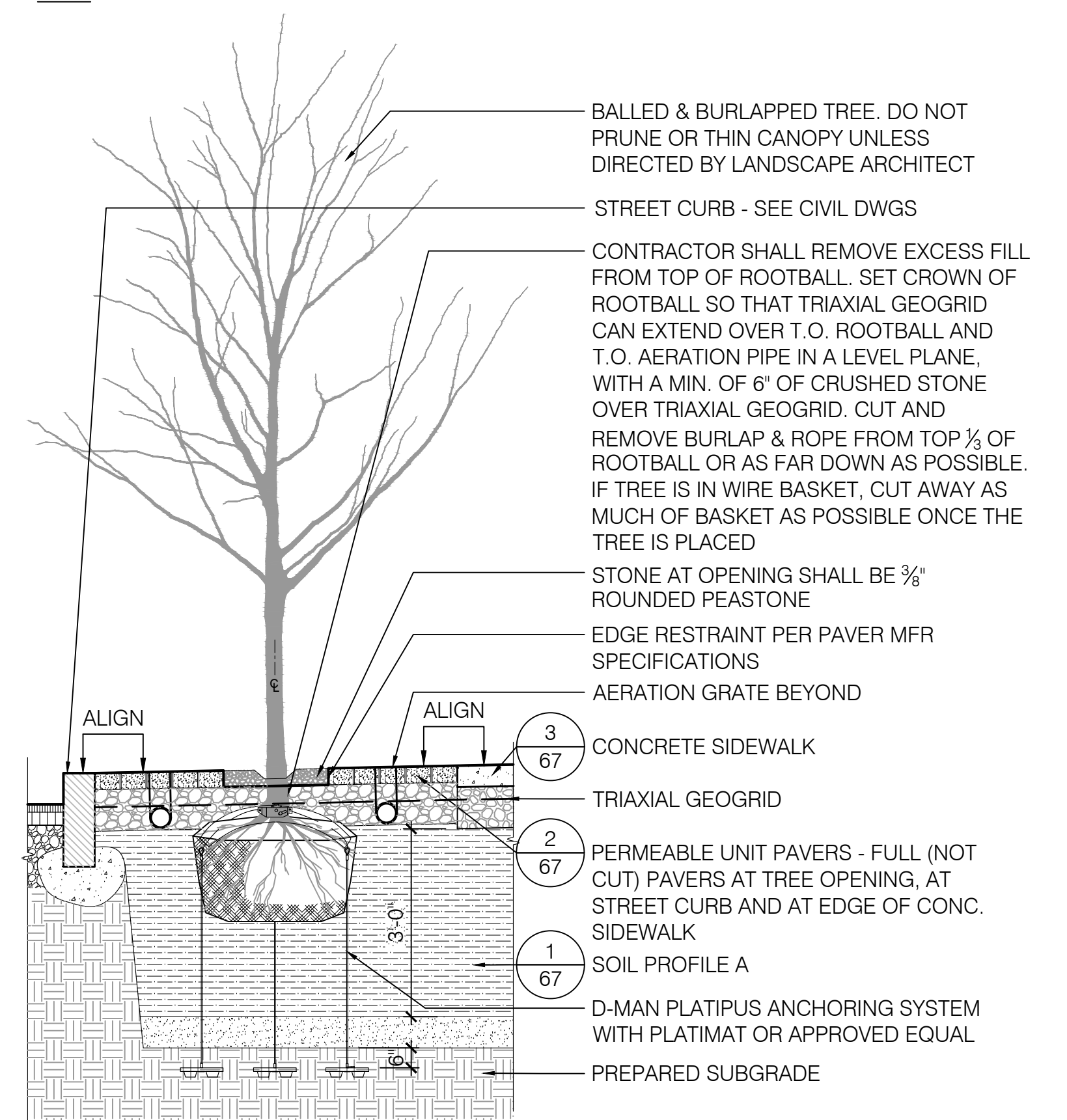
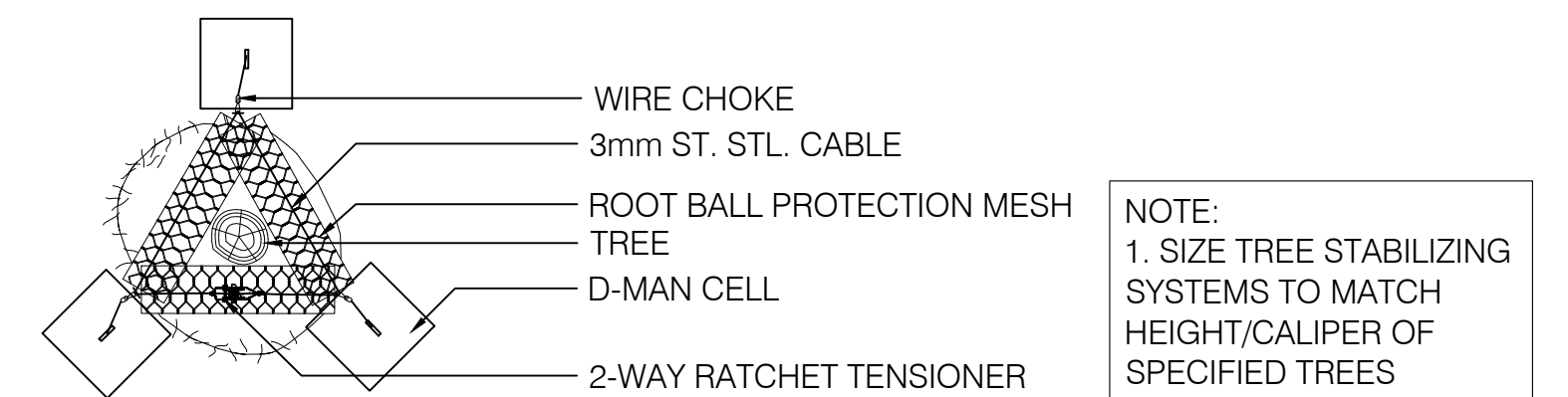
## 3 TREE PLANTING

SCALE: 3/8" = 1'-0"



## 2 SOIL PROFILE B - PLANTING BED SOIL

SCALE: 1 1/2" = 1'-0"



## 1 TREE PLANTING IN PERMEABLE UNIT PAVERS

SCALE: 1/2" = 1'-0"

Drawing file: K:\Projects\kmdg\771716 Newtonville\CAD\Newtonville\_LANDSCAPE\_DETAILS.dwg Plot Date: Aug 01, 2019 11:33am



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	KMDG
Drawn by	AA
Checked by	KP
Approved by	KM

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

LANDSCAPE DETAILS - 3

Sheet No.

68



Drawing file: K:\Projects\kmdg 771716 Newtonville\CAD\Newtonville LANDSCAPE DETAILS.dwg Plot Date: Aug 01, 2019 11:33am

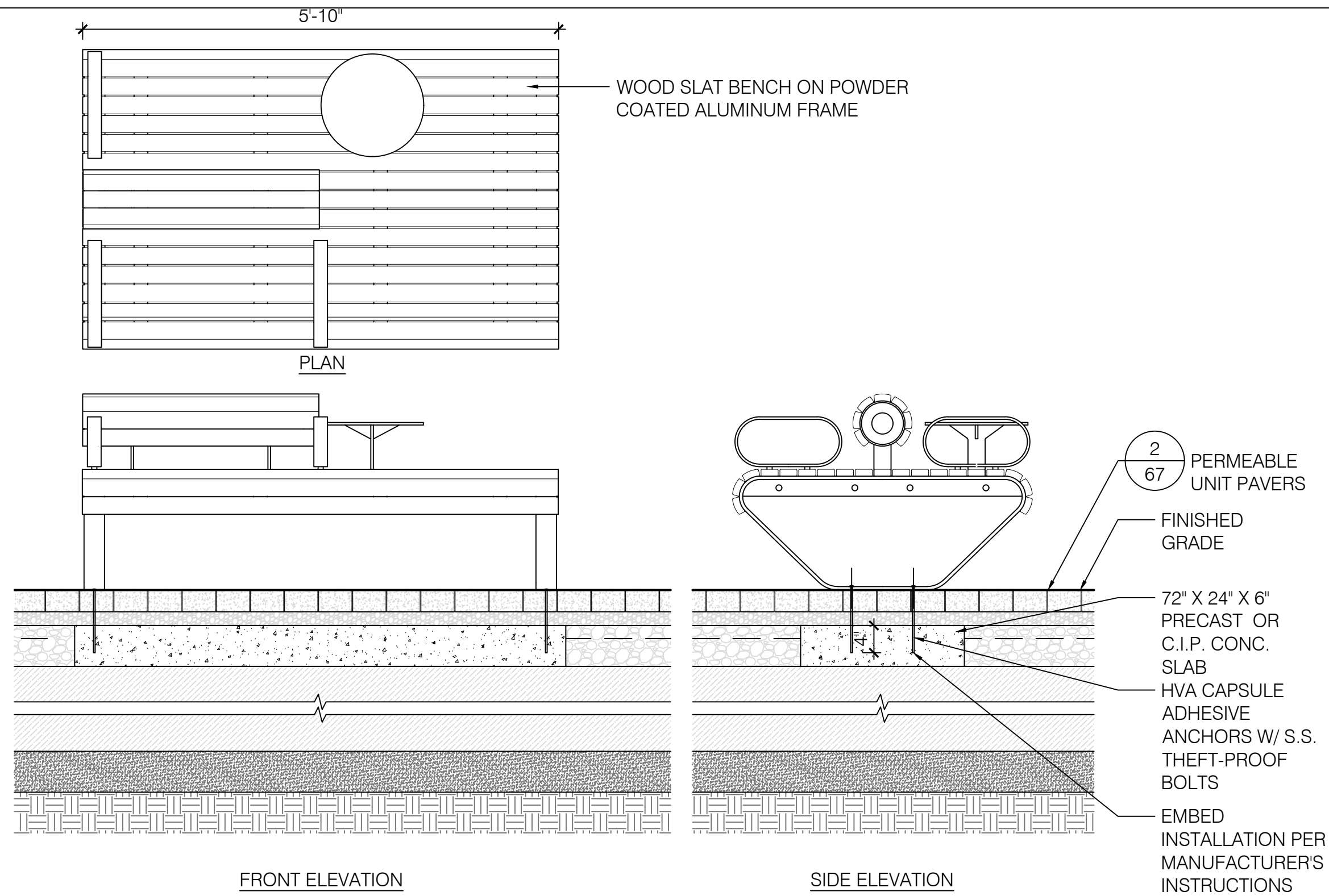


**Key Features:**

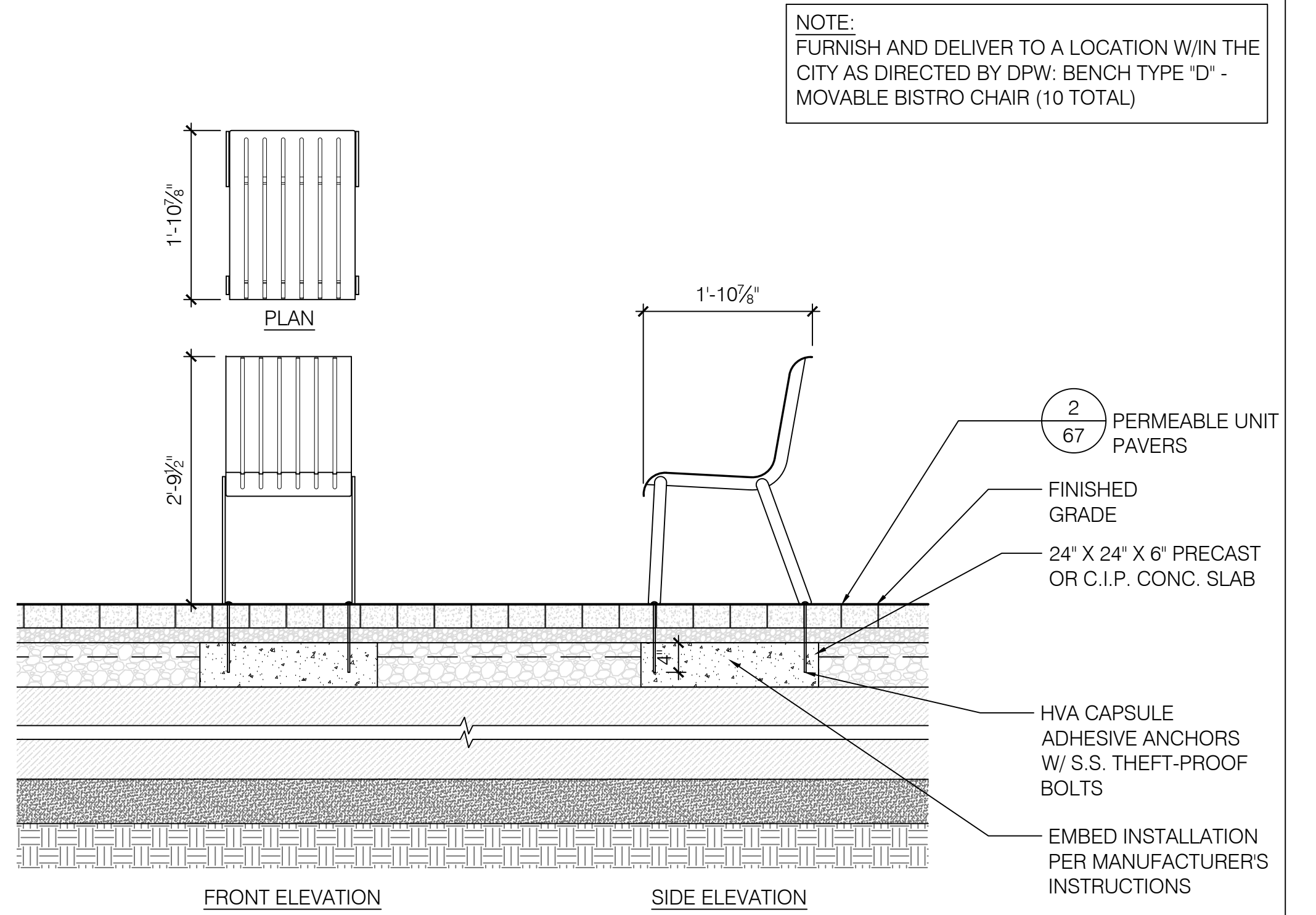
- **Arrives Fully Assembled** – no separate parts, no wicks or wicking material to install
- **Industry Leading Design** – eliminates the need for top watering & delivers superior results in the toughest commercial environments
- **Water Overflow** – internal assembly provides superior protection from over-watering while eliminating unsightly holes, insect intrusion and potential clogging.
- **Colors** – highest quality stone effect colors are included at no additional charge

**Specifications:**

- Dimensions: 41" Top/Outside Diameter x 36" H
- Planting Tray Depth: 19"
- Water Capacity: 40 Gallons
- Product Weight:
  - 48 lbs. (ship weight)
  - 550+ lbs. with water and wet soil
- Soil Capacity: 7.3 Cubic Feet
- Planters per Pallet: up to 4
- Watering Cycle: once every 2-3 weeks (mid-summer average)
- Material: LLDPE, Linear Low-Density Polyethylene Embedded with UV inhibitors to protect against sun fade
- Manufacturing: Rotational Molded for strength & durability
- Colors: Sandstone, Millstone, Gray Granite, Blackstone, Rich Terra Cotta
- Stackable: Yes
- Winterized: Yes
- 100% Made in the USA

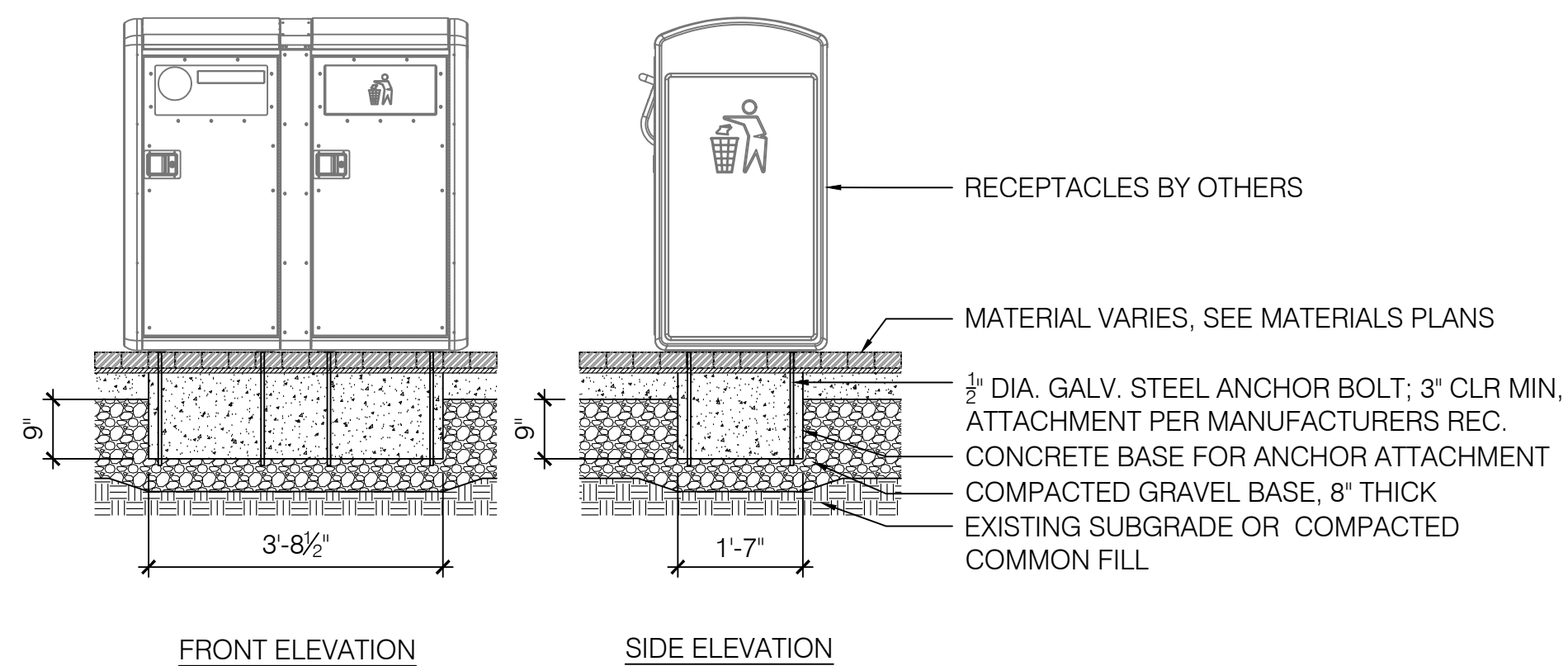


**4** BENCH TYPE 'C' - DOUBLE BENCH  
SCALE: 3/4" = 1'-0"

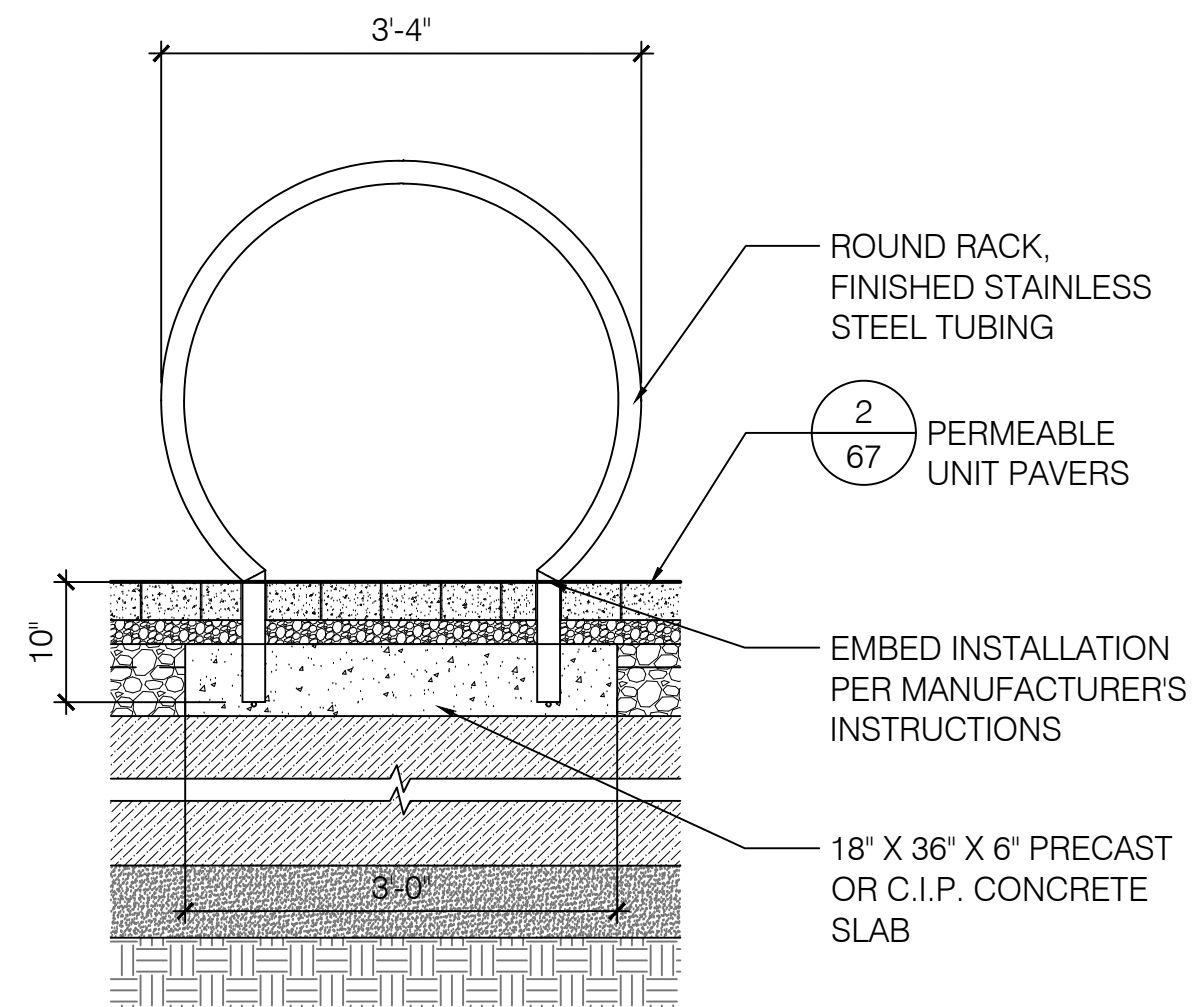


NOTE:  
FURNISH AND DELIVER TO A LOCATION W/IN THE CITY AS DIRECTED BY DPW. BENCH TYPE 'D' - MOVABLE BISTRO CHAIR (10 TOTAL)

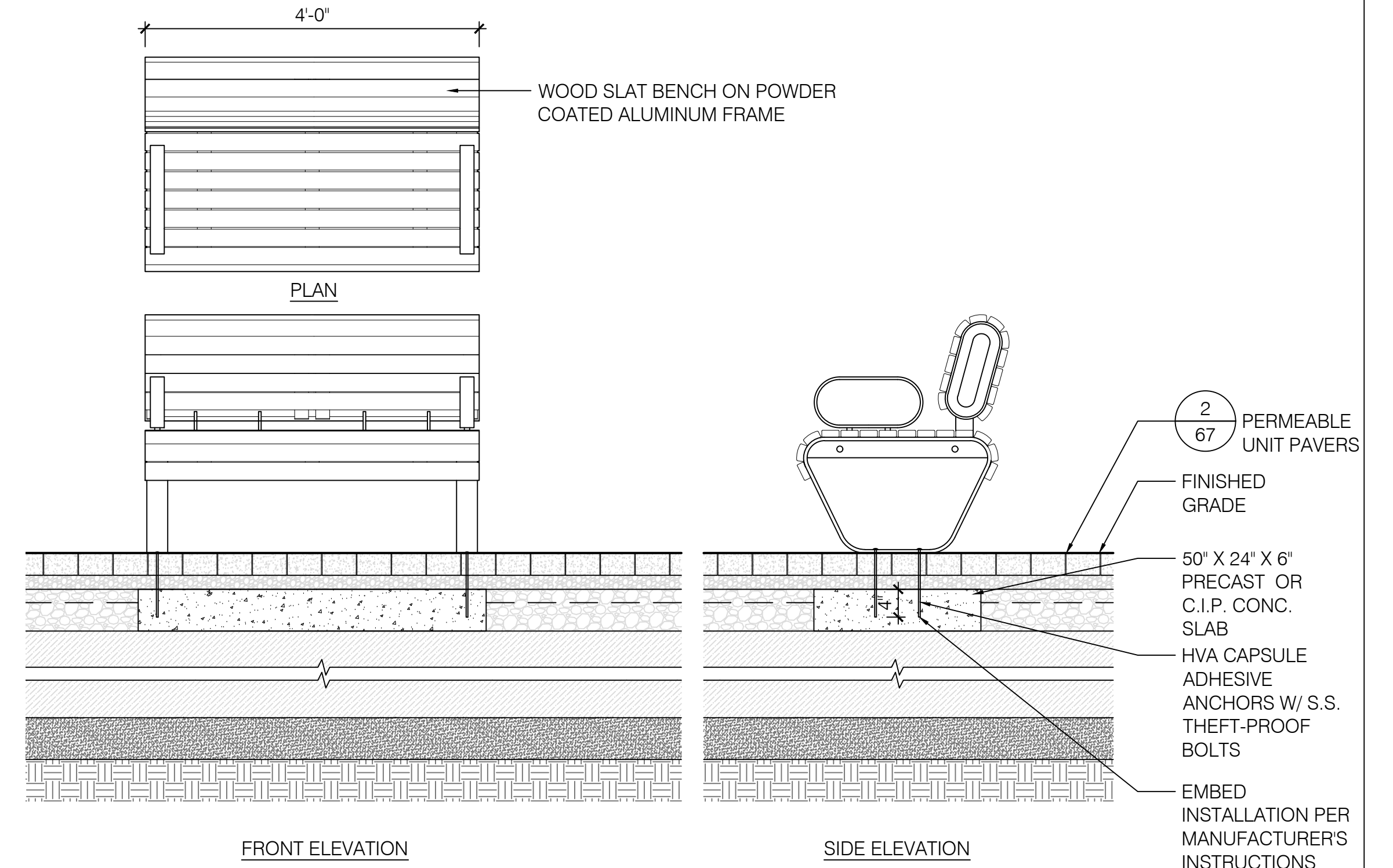
**2** BENCH TYPE 'B' - FIXED BISTRO CHAIR  
SCALE: 3/4" = 1'-0"



**5** TRASH AND RECYCLING RECEPTACLE FOOTINGS  
SCALE: 1/2" = 1'-0"



**3** BIKE RACK  
SCALE: 3/4" = 1'-0"



**1** BENCH TYPE 'A' - SINGLE BENCH  
SCALE: 3/4" = 1'-0"



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	KMDG
Drawn by	AA
Checked by	KP
Approved by	KM

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

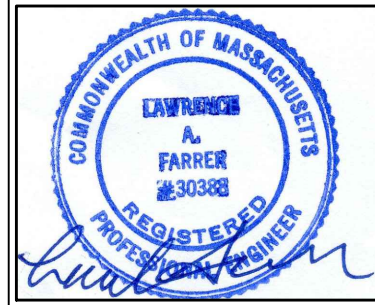
LANDSCAPE DETAILS - 4

Sheet No.

69



Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet57 - Lighting - Photo\_rev.dwg Plot Date: Aug 02,2019 5:55pm



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	
Drawn by	MC
Checked by	LAF
Approved by	

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

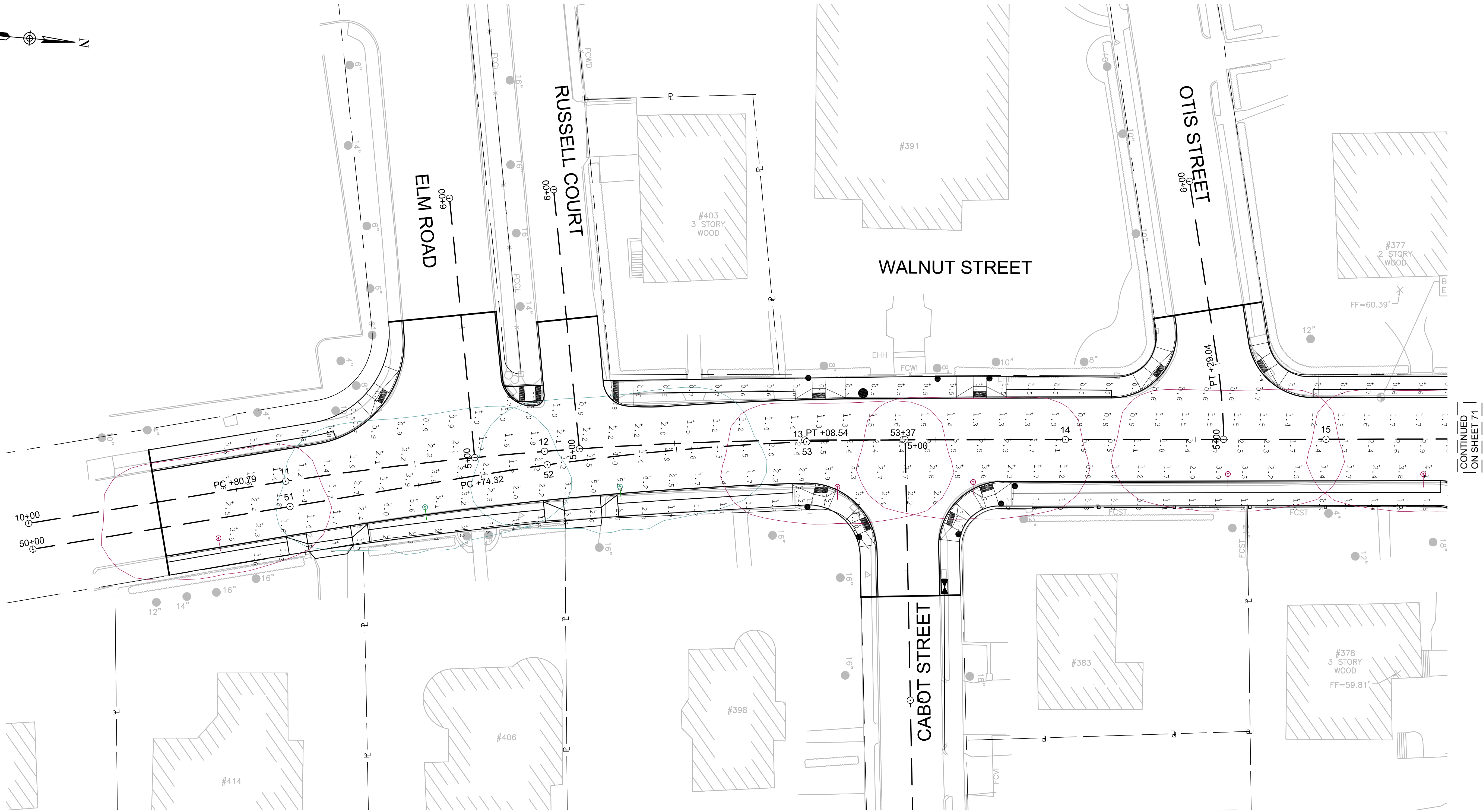
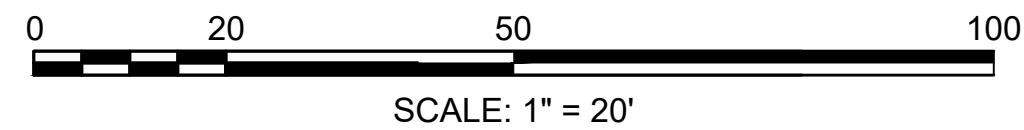
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

SITE PHOTOMETRIC PLANS - 01

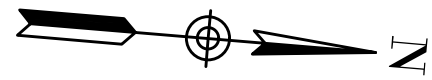
Sheet No.

70

AS NOTED

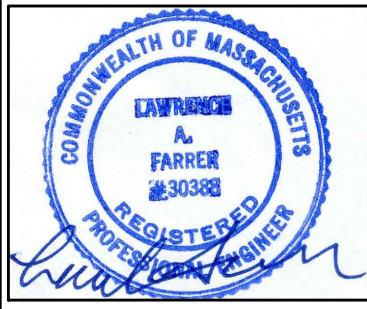


CONTINUED  
ON SHEET 71





Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet57 - Lighting - Photo\_rev.dwg Plot Date: Aug 02,2019 5:56pm



MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	
Drawn by	MC
Checked by	LAF
Approved by	

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

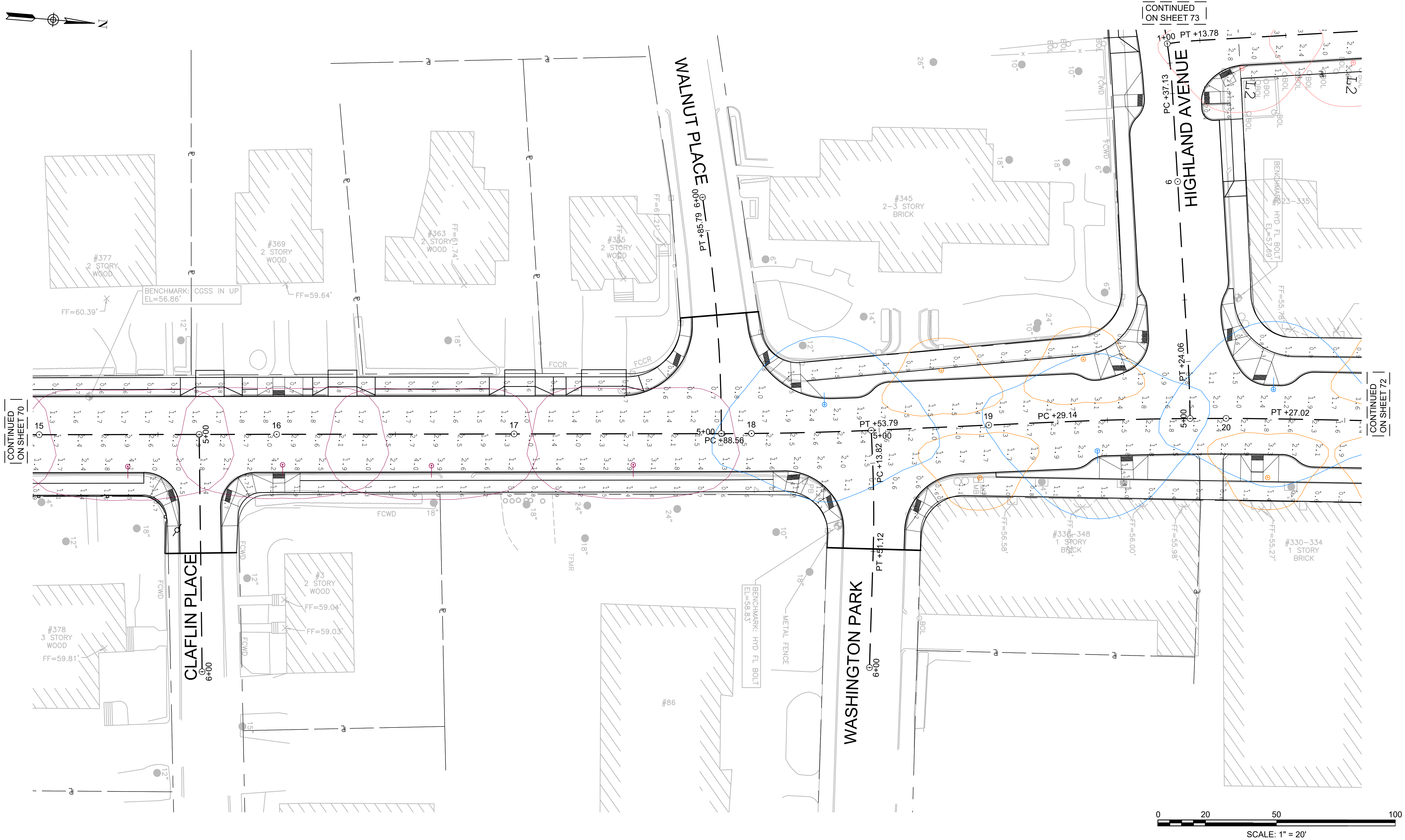
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

SITE PHOTOMETRIC PLANS - 02

Sheet No.

71

AS NOTED













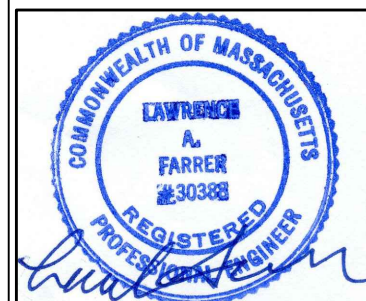




Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet05a - Lighting\_rev.dwg Plot Date: Aug 02 2019 9:51:14pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



					Scale	AS NOTED
					Date	JULY 2019
					Job No.	R326-1605.00
					Designed by	
					Drawn by	MC
					Checked by	LAF
					Approved by	
MARK	DATE	DESCRIPTION				

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

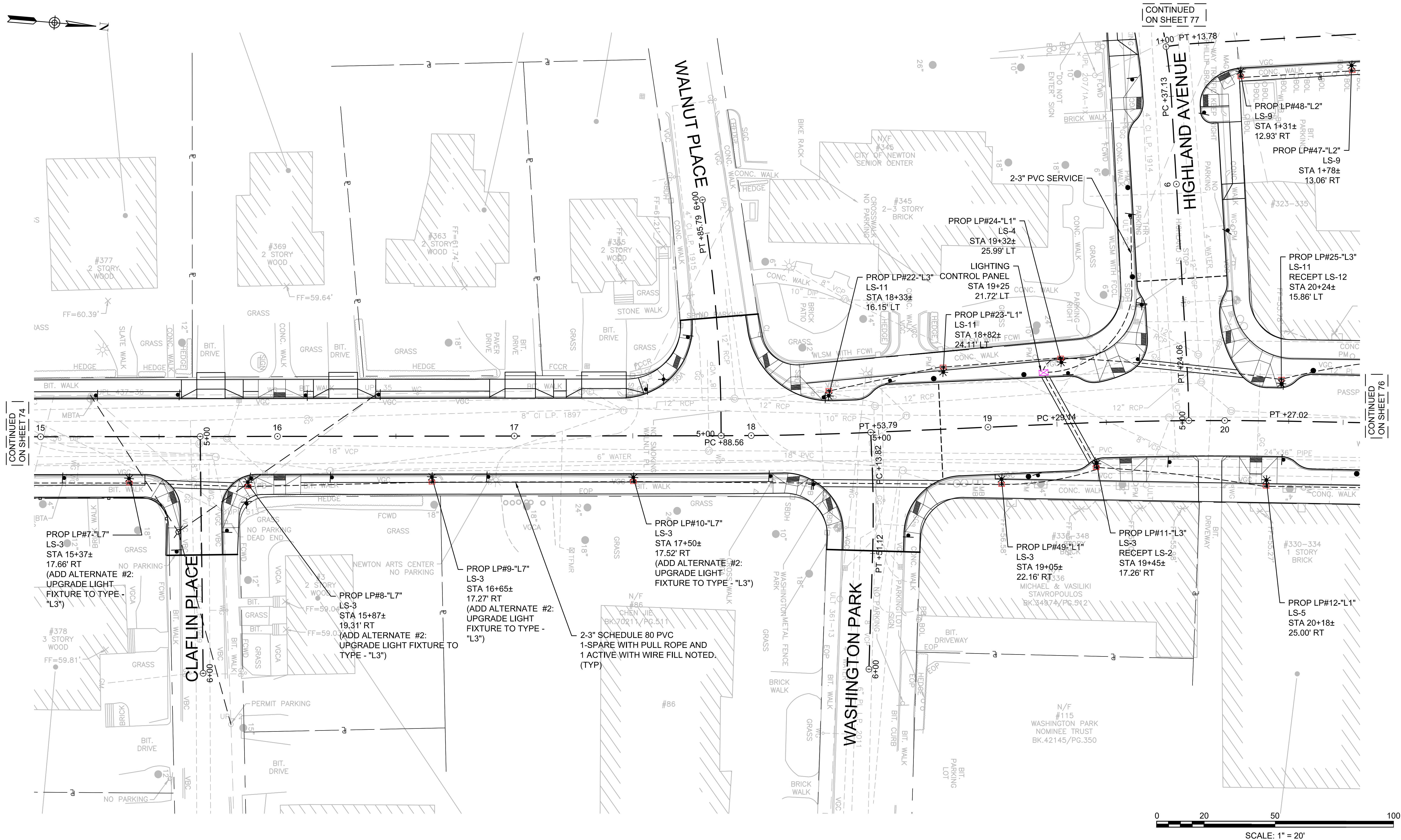
REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

STREET LIGHTING PLANS - 02

Sheet No.

75

AS NOTED

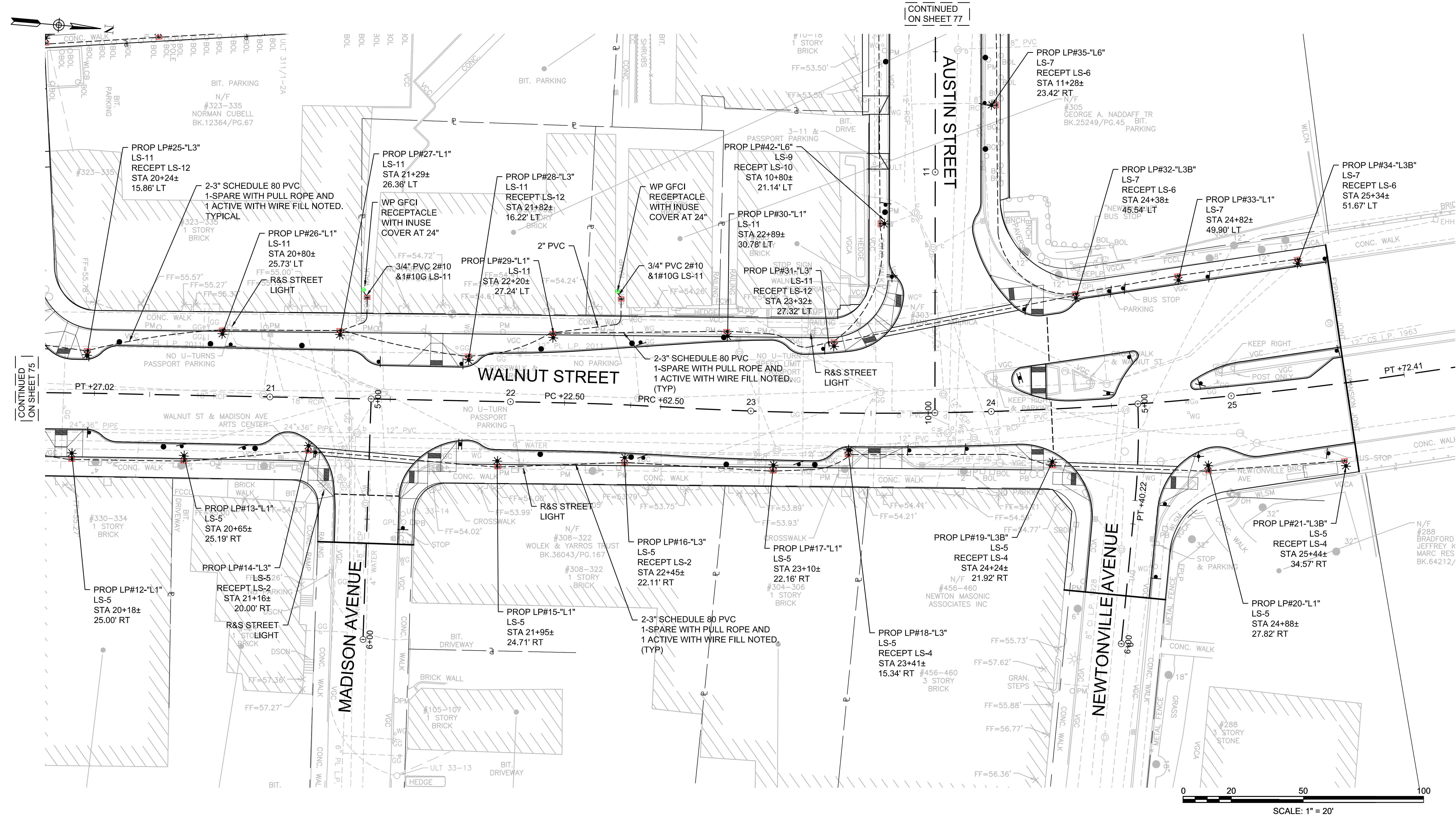


CONTINUED  
ON SHEET 74

CONTINUED  
ON SHEET 76

CONTINUED  
ON SHEET 77

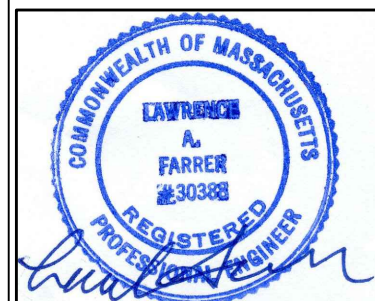




Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet05a - Lighting\_rev.dwg Plot Date: Aug 02 2019 6:13pm



**Environmental Partners**  
A partnership for engineering solutions.



Scale	AS NOTED
Date	JULY 2019
Job No.	R326-1605.00
Designed by	
Drawn by	MC
Checked by	LAF
Approved by	

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

REHABILITATION OF WALNUT STREET  
NEWTON, MASSACHUSETTS

STREET LIGHTING PLANS - 03

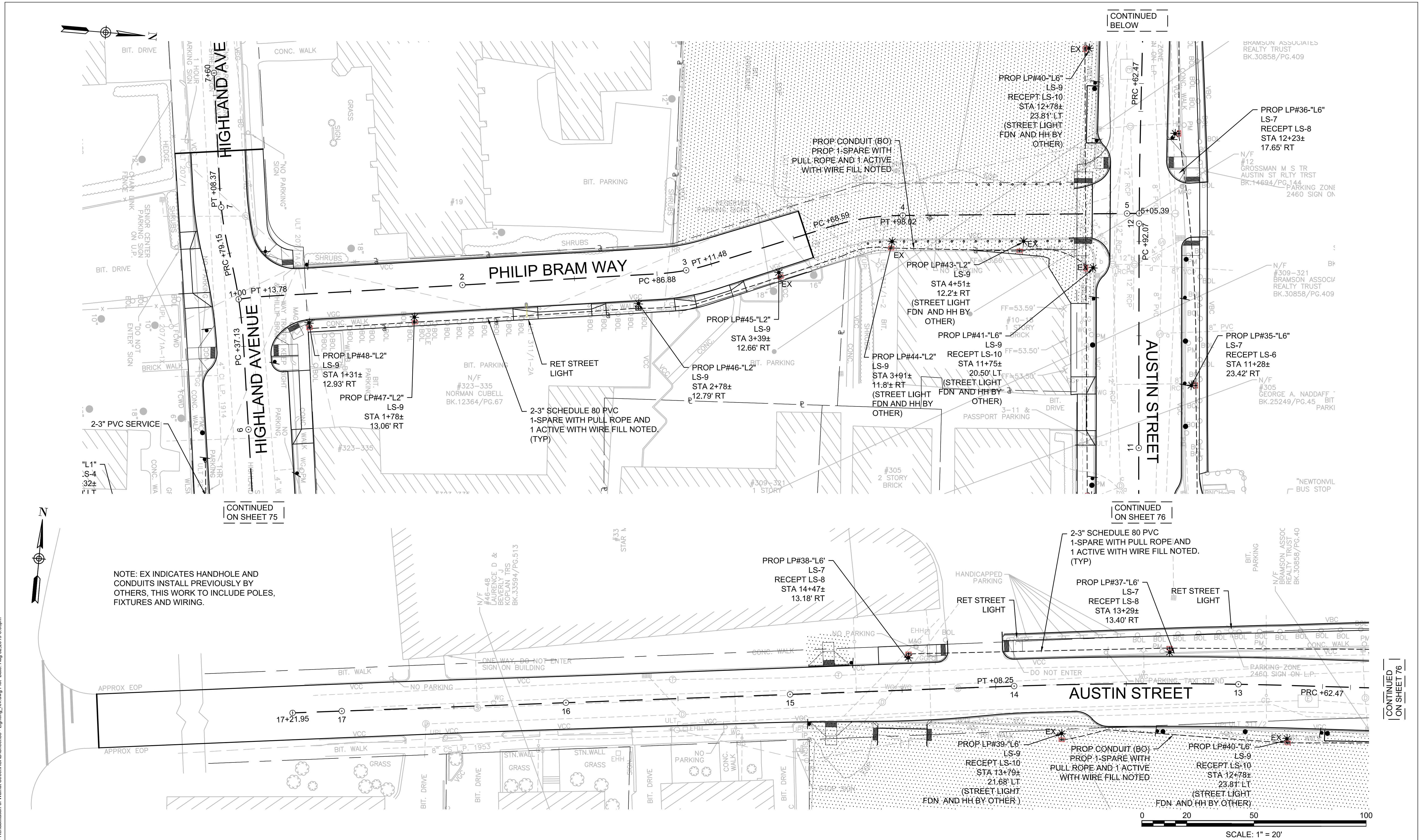
Sheet No.



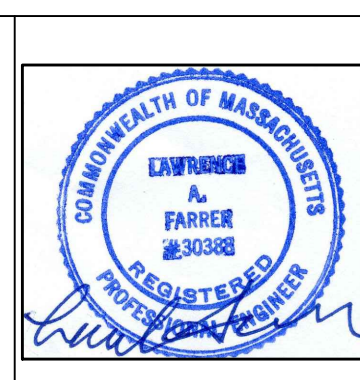
76

AS NOTED

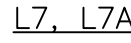
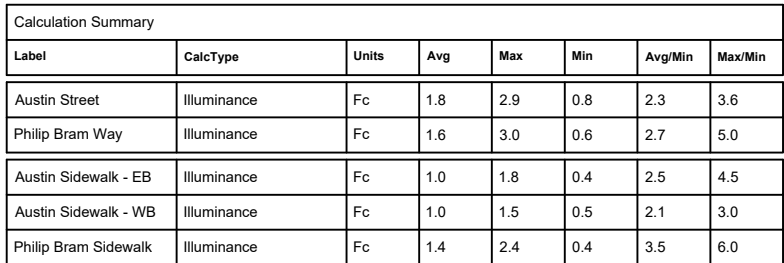


Drawing file: I:\Newton\326-1605 Newton - Rehabilitation of Walnut Street\ACAD\Sheet06 - Lighting\_rev.dwg Plot Date: Aug 02 2019 6:09pm

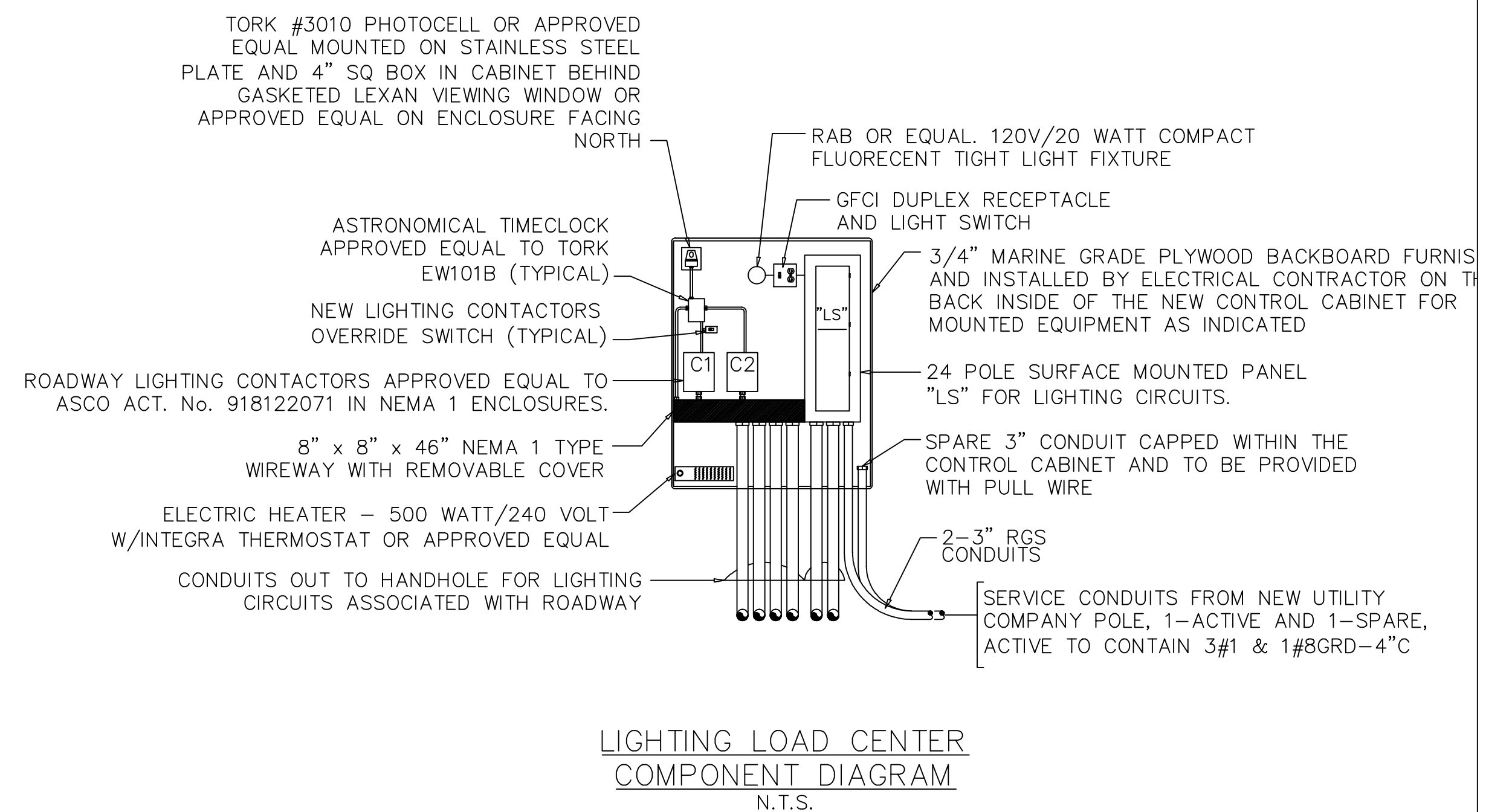
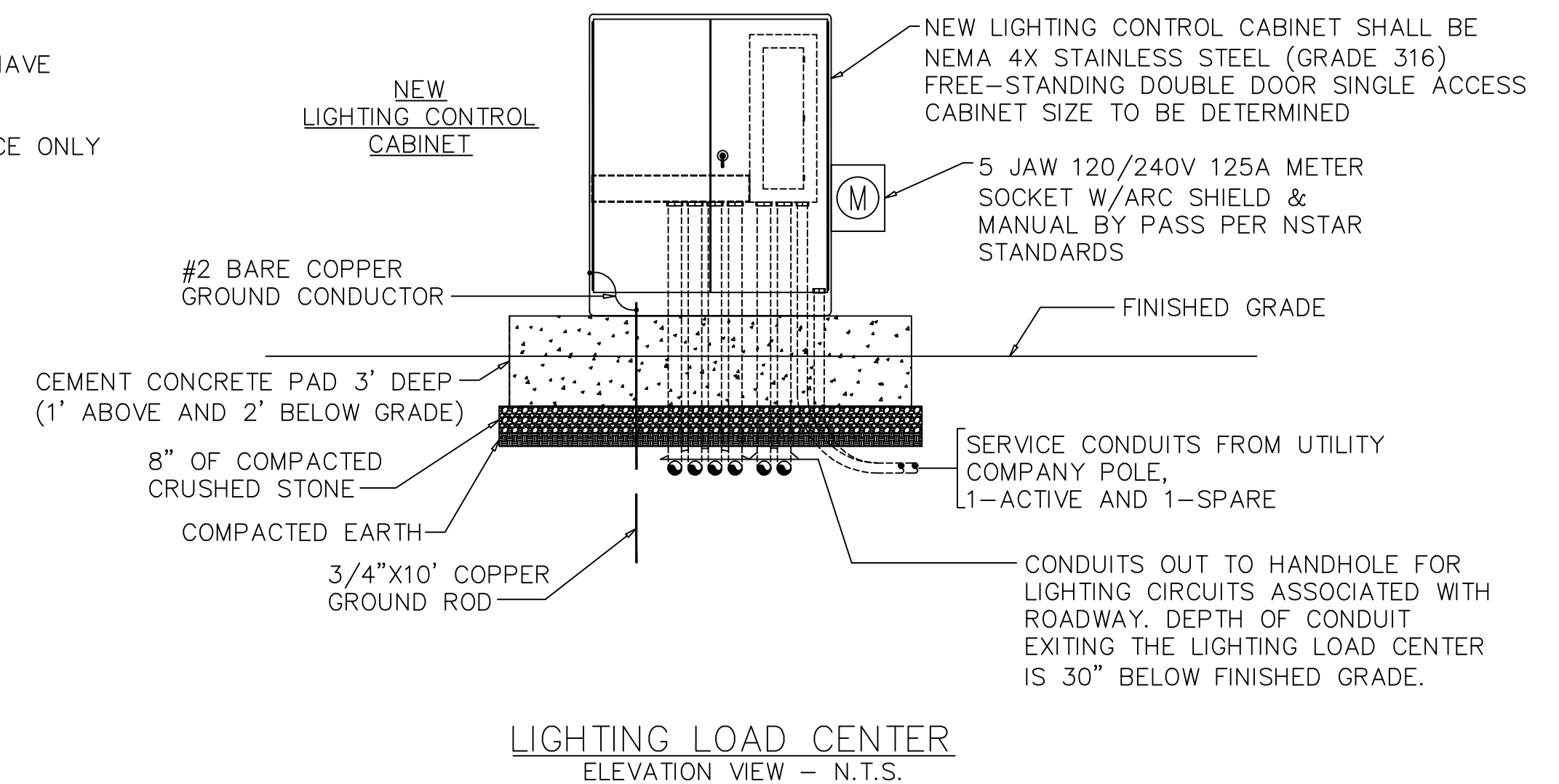
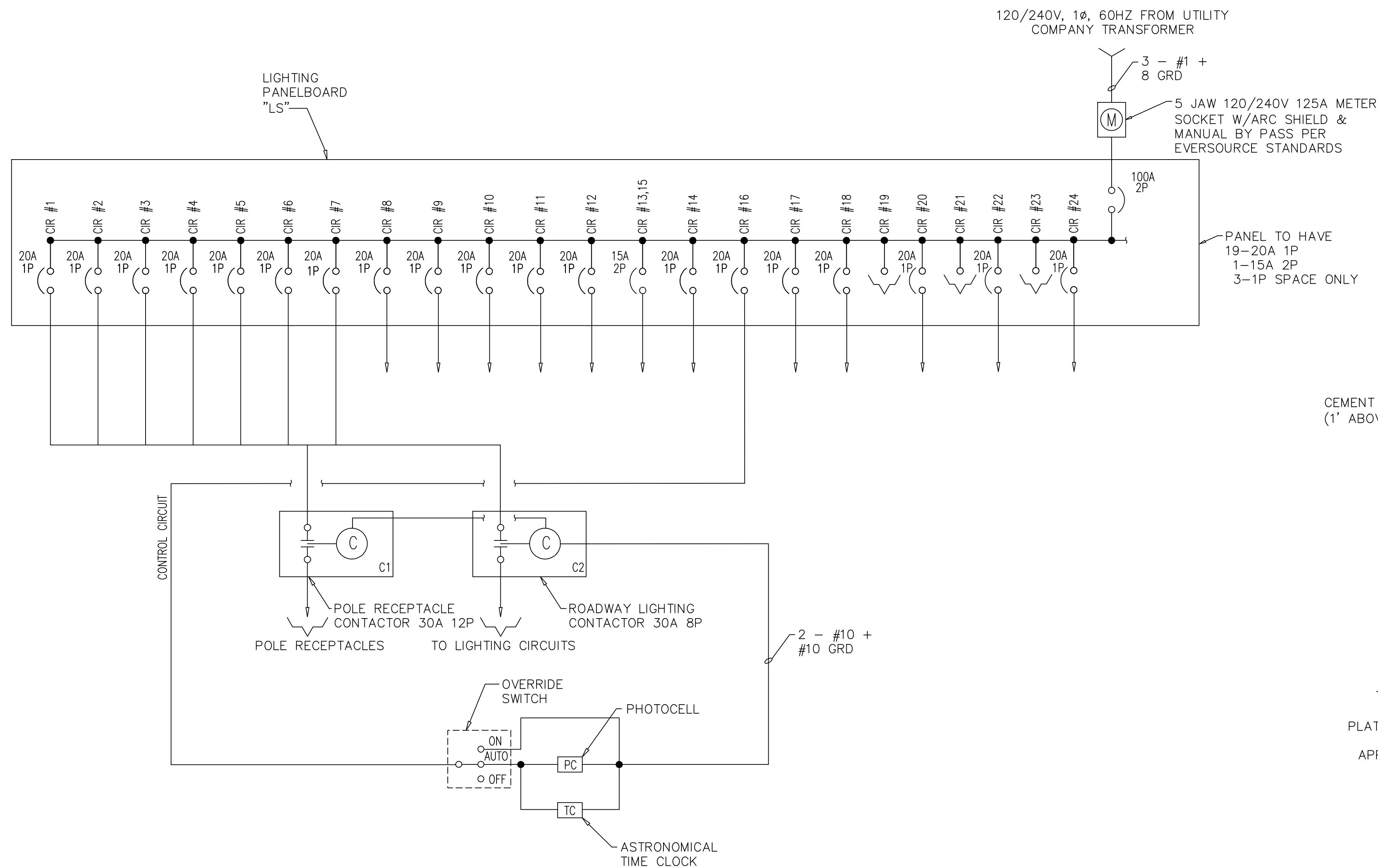


			MARK	DATE	DESCRIPTION	Scale	AS NOTED	REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS	Sheet No. <b>77</b> AS NOTED
						Date	JULY 2019		
						Job No.	R326-1605.00		
						Designed by			
						Drawn by	MC		
			Checked by	LAF	THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING	STREET LIGHTING PLANS - 04			
			Approved by						

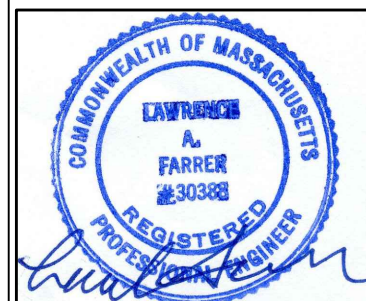








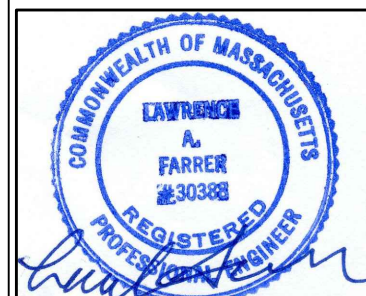
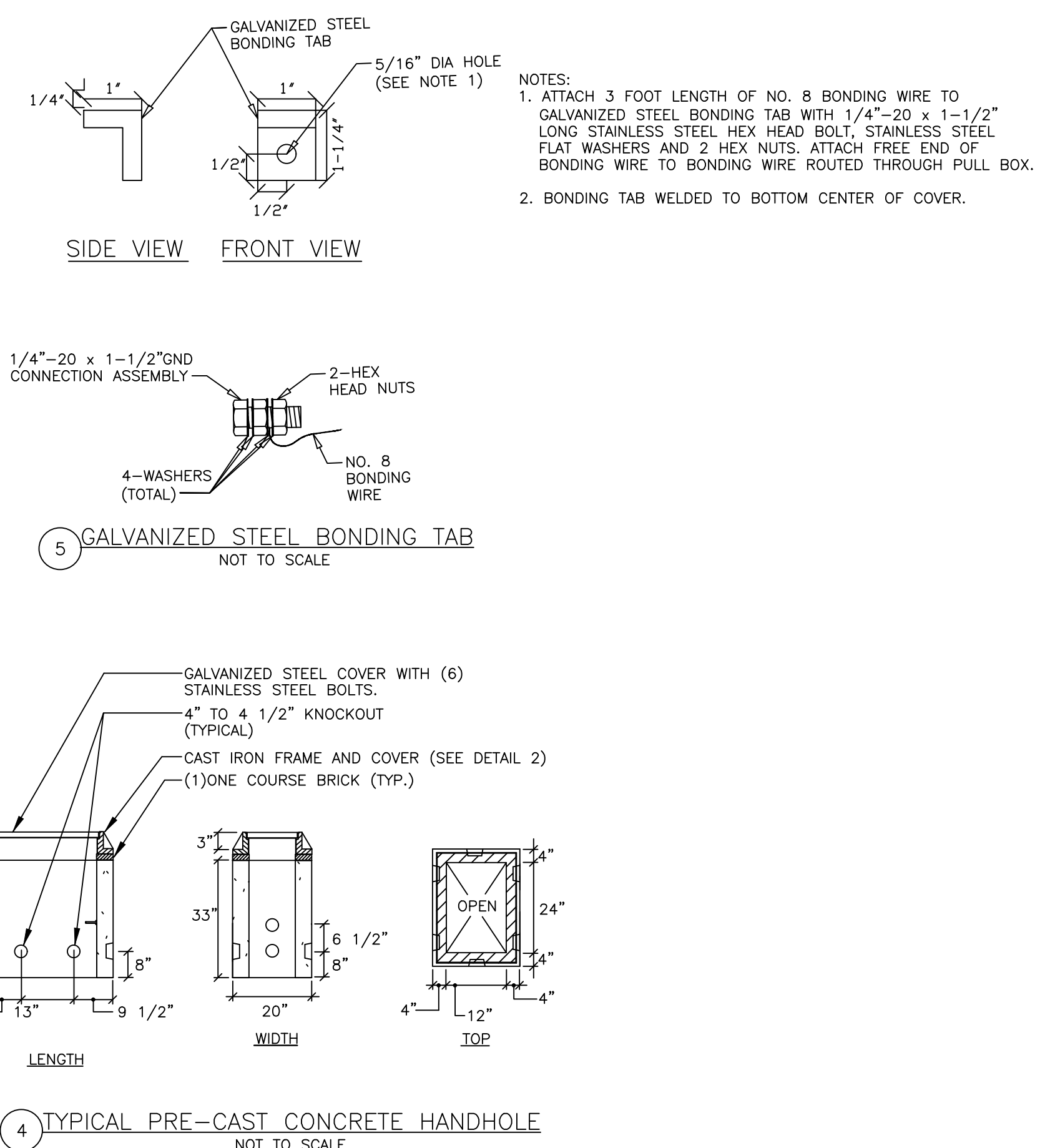
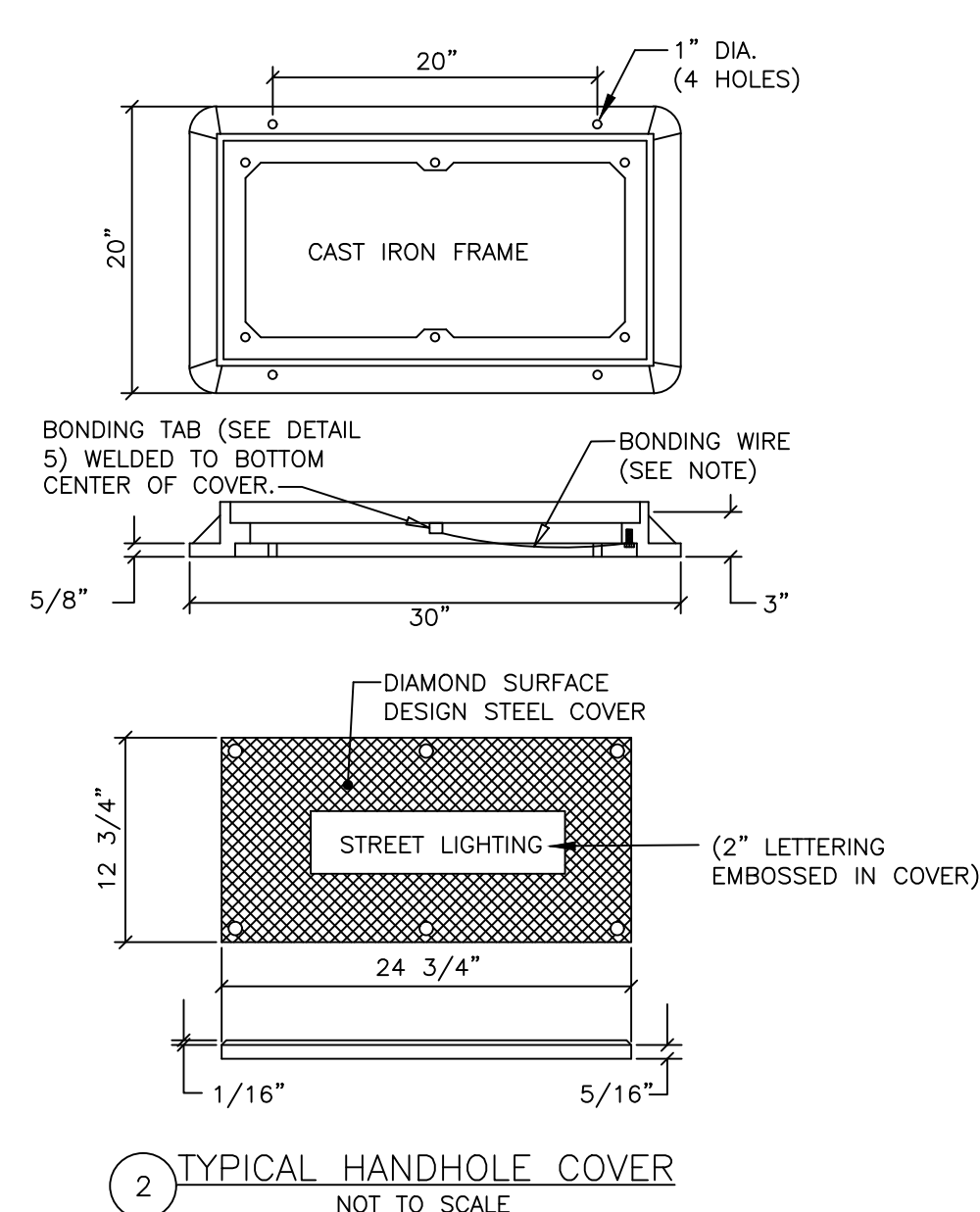
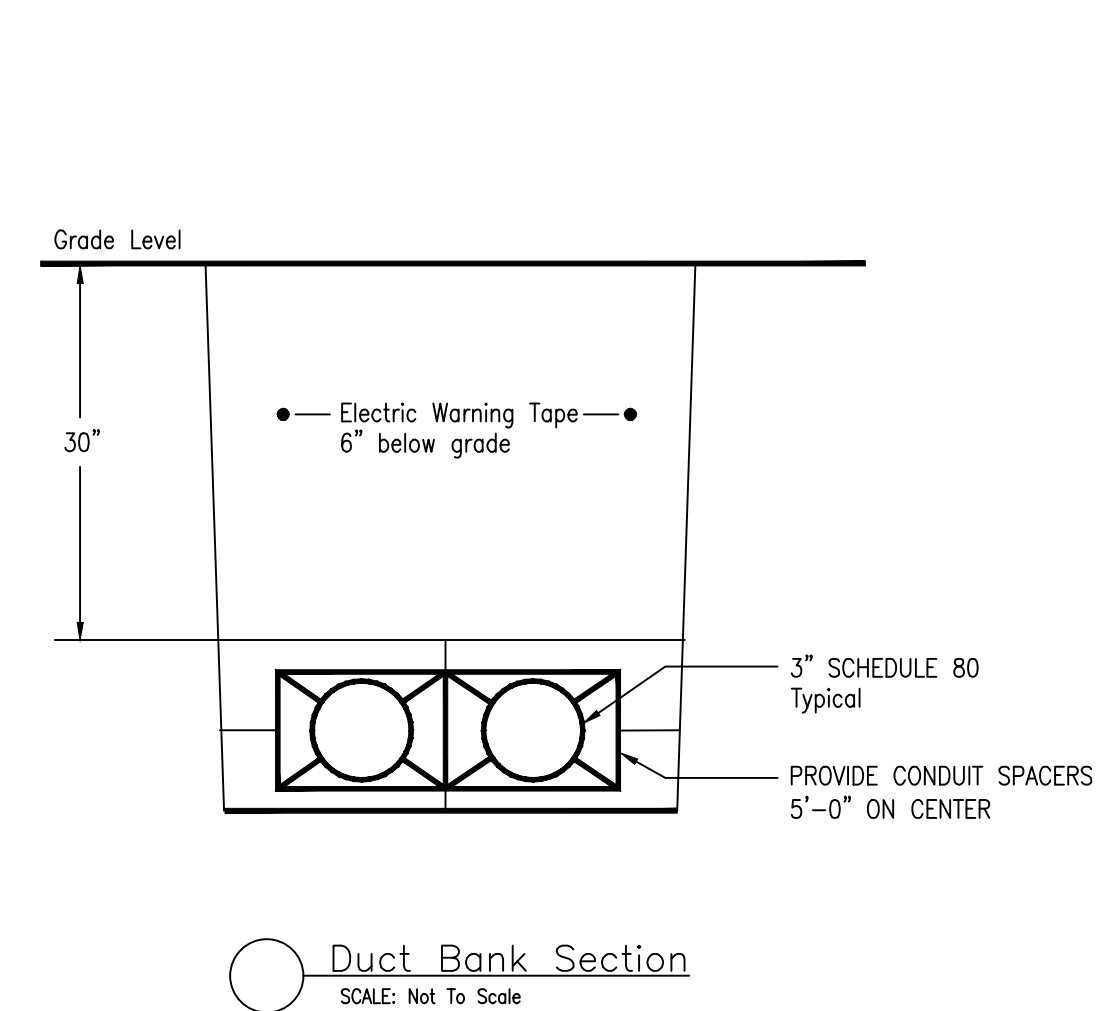
SCHEDULE FOR PANEL: LS														
VOLTAGE: 208Y/120V, 1Ø, 3W				MLD		X EQUIPMENT GROUND BUS		POLES: 24			MIN CB IC: -			
MAIN BUS: 125A				X MCB		ISOLATED GROUND BUS		MTG: SURFACE			COMMENTS: SE/UL			
CKT	SERVES	LOAD VA	BREAKER P	BRANCH TRIP	PHASE		BRANCH CIRCUIT	BREAKER TRIP	LOAD VA	SERVES	CKT #			
					A	B								
1	LIGHTS		1	20	2#6		2#8	20	1	RECEPTACLES	2			
3	LIGHTS		1	20	2#6		2#8	20	1	RECEPTACLES	4			
5	LIGHTS		1	20	2#6		2#8	20	1	RECEPTACLES	6			
7	LIGHTS		1	20	2#6		2#8	20	1	RECEPTACLES	8			
9	SPARE		1	20			2#8	20	1	RECEPTACLES	10			
11	ALLEY RECEPTACLE		1	20	2#8 & 1#8GND.		2#8	20	1	RECEPTACLES	12			
13	HEATER	]	2	15	2#10 & 1#10GND.		2#10 & 1#10GND.	20	1	LIGHT & RECEPTACLES	14			
15							2#10 & 1#10GND.	20	1	CONTROL CIRCUIT	16			
17	SPARE		1	20				20	1	SPARE	18			
19	SPACE ONLY		1				2#8	20	1	RECEPTACLES	20			
21	SPACE ONLY		1				2#8	20	1	RECEPTACLES	22			
23	SPACE ONLY		1				2#8	20	1	RECEPTACLES	24			
TOTAL CONNECTED LOAD (VA)						0	0	(VA/PHASE)		TOTAL CONNECTED LOAD (AMPS)				
						0	0	(AMPS/PHASE)				0		
NOTE: NO SHARED NEUTRAL PROVIDE 1#6 GND. IN ALL CONDUITS.														



			Scale	AS NOTED
			Date	JULY 2019
			Job No.	R326-1605.00
			Designed by	
			Drawn by	MC
			Checked by	LAF
MARK	DATE	DESCRIPTION	Approved by	

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING





			Scale	AS NOTED
			Date	JULY 2019
			Job No.	R326-1605.00
			Designed by	
			Drawn by	MC
			Checked by	LAF
MARK	DATE	DESCRIPTION	Approved by	

THIS LINE IS ONE INCH  
LONG WHEN PLOTTED  
AT FULL SCALE ON A  
22" X 34" DRAWING

# REHABILITATION OF WALNUT STREET NEWTON, MASSACHUSETTS

## STREET LIGHTING DETAILS - 03

Sheet No.

80

AS NOTED